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THE SOCIETY FOR CULTURAL RELATIONS
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THE SOCIETY FOR CULTURAL RELATIONS

Between the Peoples of the British Commonwealth of Nations
and the Union of Soviet Socialist Republics

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The Society was founded in 1924 as a non-political organization, with the object of collecting and diffusing in both countries information on developments in science, education, philosophy, art, literature, and social and economic life. It has arranged numerous lectures, exhibitions, concerts and film performances, and is always ready to obtain information for learned societies and institutions in Great Britain and the U.S.S.R., and for its own members. Recent activities of the Society have included an exhibition of graphic art, a Queen's Hall concert, and an audition of film recordings of new Soviet music. The minimum subscription is 5s. per annum.

THE ANGLO-SOVIET JOURNAL

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The experiments and advances made by the Soviet Union in the realms of the arts and sciences and of social welfare have been the subject of many books, but so rapid is progress in this new country of 183 million inhabitants, that the most exhaustive book soon becomes out of date in detail. In order to help readers to keep up to date, and to make available material which at present is contained only in periodicals published in the U.S.S.R. in Russian, the Society for Cultural Relations is publishing this quarterly journal in which experts will deal with subjects of artistic and scientific interest in a non-technical manner. Every aspect of Soviet cultural life will be covered, including science, medicine and social questions; industry and agriculture; economics and administration; literature, art, music and the drama; physical culture and sport. It will deal seriously but not solemnly with these subjects; it will aim at being objective, since its purpose is to inform rather than convince. The contributors will be English and Russian, and of high scientific and academic standing.

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A WORD FROM THE CHAIRMAN OF THE S.C.R.

AS Chairman of the Society for Cultural Relations between the Peoples of the British Commonwealth and the U.S.S.R. I want to write a few words of welcome to our new Quarterly, and to those who as editors or contributors are giving their skill and knowledge to its production.

Our two countries constitute nearly two-fifths of the world, a world in a state of unprecedented instability and uncertainty, a world of great fears and greater hopes, a world of immense potentialities for good or evil, for wealth or misery, for progress or reaction, for peace or slaughter.

Thoughtful people everywhere strive anxiously to achieve the good, the wealth, the progress, the peace; they differ a little in their conceptions of the true shape of these benefits, and differ far more as to the means of reaching and keeping them. But there will be few indeed who dissent from the view that now more than ever only good can come, and good only can come, from a fuller and wider understanding of one people by another. We cannot even realise or appreciate the ideals, aspirations, and outlook of this other great community of peoples if we do not use and develop every avenue and opportunity that offers itself of fuller acquaintance with their civilisation, their culture, their industry, their life. Indeed, if we fail in that we cannot even derive the advantages which should lie open to us from the practical discoveries and developments with which the leaders of thought and culture, of science and industry and art, in the U.S.S.R., are enriching the common stock, or what should be the common stock, of human knowledge.

The fullest cultural interchange between the two peoples is, I think, made still more necessary, and still more profitable, by the developments of the Soviet republics over the last two decades. Not only are we, as I have mentioned, in a period of rapid flux and change in the world's history; but it is clear

that in the U.S.S.R. we are face to face with a wholly new life. A world of old civilisations, some of them good and some of them bad, some in decay and some with life still left in them, is confronted with a new civilisation, new not only because it is imbued with new economic and social conceptions but also because it has been built afresh on the ashes of an old world completely burnt out. Contact with such a new world must have far more to teach us, must offer us far more examples to copy and to avoid, than we could ever receive from mere contact with an already old and well-known civilisation. Here is no architect ringing the changes on the storehouse of past generations; here is something newer than "the thrill of the first discovery of the pointed arch": here is wholly new building.

We should all do what we can, in such a world, to widen international understanding. The service which the S.C.R. is best fitted to offer to this cause is to bring to the more scientifically skilled and specialised workers and students in the British Commonwealth a regular flow of information, accurate and reliable, on the progress and developments that are being realised in the U.S.S.R. in their own field, the field which they understand best. This is the task of our editors and contributors, and in it I confidently give them good wishes.

D. N. PRITT.

EDITORIAL

THE need for reliable objective information about the Soviet Union becomes more and more apparent as time goes on. It is a need which can hardly be satisfied by the impressions brought back from a fortnight's visit, even if the visitor knows the language, which he rarely does.

It is inevitable that on such a short visit it is the trivialities that should make the most impression: paint peeling off buildings, lack of plugs in wash-basins, etc. The visitor has not even time to learn that the Russian is brought up to regard washing in still water as an unclean habit.

Even those who spend longer periods in the country, to study this or that aspect seriously, are not always able to see the country in its entirety, to see the relation of their particular piece of mosaic to the design as a whole.

There is exciting adventure in the U.S.S.R., all the more exciting because they are adventures in reality, because the forces with which the Soviet Union deals are the elemental forces of nature. They set out with a calm assurance of victory not only to change the most backward agricultural country of 170 million people into the most advanced industrial country; they set out to change the very face of the land: to divert the course of rivers, to make fertile plains of desert lands, to make the Arctic wastes feed man with bread and fruits. Possibly their most exciting adventure is the attempt to change man.

In their adventurous course they have to deal with problems of agriculture, industry, and economics, with problems of organisation and administration, and problems of ethics. Finally they have to solve the problem of the right environment for the fullest and freest development of the individuals which go to make up the State.

The sciences and the arts are the instruments with which they seek a solution to their problems.

It is the development of these instruments and their measure of success which is of vital interest to the rest of the world. The development of industrial and agricultural sciences, the development of medicine, the development of

what we in Europe call pure science, the development of education, art, music, literature, drama; of the social services and social relationships; about all these we need reliable and objective information. It is our aim to satisfy this need.

This first number of the *Anglo-Soviet Journal* deals mainly with agriculture and its problems. It seemed to the editor a fitting foundation on which to build. Ultimately the success of a society depends on its ability to feed its people. The articles will give some indication of the variety of work done.

There appears to be a good deal of misunderstanding about the freedom of the scientist in the U.S.S.R. The criticism is made that there is interference with his work.

Now it is a fact that many research workers after a time become involved in the methodics of their work, that they pursue a successful line of work to its illogical end, so that often the truth with which they started out becomes falsehood in the end. This is particularly true of the inexact sciences, psychology for instance, where quite fantastic statements are given out as scientific truth.

In the U.S.S.R. it is not possible for scientific workers to continue and exaggerate their error till the end of their life. There is no scientific figure, however great, who is above challenge and criticism, and he must take up the challenge and answer the criticism.

It thus happens, sometimes, that the world is shocked by the denial of scientific conclusions arrived at by world-famous Soviet and foreign scientists. But the challenge and criticism are based on experiments over a vast field. It may be that not enough attention is paid to the duration of experiments, but that defect is being remedied every year.

The same attitude of challenge and criticism is adopted towards the arts. This does result in a certain interruption of creation, but ultimately it has a beneficial effect, if we may judge, for instance, by the latest music of Shostakovich, or the latest work in the theatre.

We hope this critical attitude will be adopted to the *Anglo-Soviet Journal* by our readers, and we hope that as a result the journal will improve with every number.

The Editorial Board is sufficient guarantee of the high standard we have set ourselves. The support of our readers by becoming regular subscribers will be a great stimulus to us in our efforts to supply information of a serious character about a country which has such an important part to play in the comity of nations.

EXHIBITIONS IN SOVIET LIFE

EXHIBITIONS are extensively used in the U.S.S.R. for all purposes. More and more it is being realised that to sell one's goods, whatever they are—machinery, books, health, or culture—they must be exhibited, not merely shown, but exhibited. The Soviet authorities realised this very early in their existence, and exhibitions have always been a most popular method of selling the goods to the people.

In the hands of the Soviet authorities it is of the greatest educational value. Nothing makes a man so conscious of his citizenship as to know what is happening in his country. I remember in Kharkov in 1934, I think, visiting in one of the clubs, either the Red Army or the railwaymen's, an exhibition of Kharkov. Here on charts and diagrams was portrayed the city's organisation, her achievements in industry and culture. On stands and in cases were samples of Kharkov's industry and culture. Side by side with exhibits of modern life were exhibits of pre-revolutionary life. I was told, and knowing the Russian I have no hesitation in believing it, that nearly the whole city and most of the collective-farms near by had visited it. Looking through the impressions of the visitors I found they were not only grateful for the opportunity of learning about their city, but they were stimulated to further efforts in its improvement.

Much is done in the U.S.S.R. to make citizens of the different republics, and of different parts within the same republic, conscious of each other, aware of each other as fellow-workers and strivers after the same end. Exhibitions form an excellent medium for this. In 1936 I saw a fascinating exhibition in Kiev of Ukrainian folk-handicrafts. Those who know the Ukraine will know how rich such an exhibition

can be. It visited all the big centres of the Union. The work of the Palekh artists is known in every corner of the U.S.S.R. through exhibitions of their work.

One of the exhibitions which gave me most pleasure was of the painting and sculpture of the peoples of the North. It seemed to give equal pleasure to the Russians visiting it, who like me were filled with wonderment at the creative genius of peoples who less than twenty years ago were illiterate, and were living under the most abject conditions of primitive squalor.

There is no phase of life whose achievements are not at some time or other exhibited. Naturally, graphic art plays a large part, and there is always some special art exhibition on.

While often the purpose of an exhibition is merely to show what has been achieved, equally often it is deliberately used as an educational method. This is particularly the case in rural areas far from museums or contact with the centres. Many readers may know the Museum of Children's Books in Moscow. Its object is to inculcate an appreciation and a love of books in children, to introduce them to the great creators of books, to the story of printing.

Most of the exhibits giving information are arranged as games of skill, and everything is to be handled and touched. Obviously only a small percentage of the Soviet's children can visit this museum in Moscow. There is a universal rule in the U.S.S.R. that if the people cannot come to the place where education and culture lives, then education and culture must be taken to the people. What more simple than a travelling exhibition?

All the stands in the Museum of Children's Books are so constructed that they are easily packed into one or two large cases, which are then sent off to visit the collective-farms and state-farms, the industrial settlements, the hunting and fishing co-operatives in the North, the Polar stations, and so on; to introduce the delight and the satisfaction of books to those cut off by distance or the difficulties of communication from cultural centres.

By far the most important work is done by these travelling exhibitions. They are a powerful weapon in the fight for hygiene, health, and sanitation, and in introducing new methods of agriculture and industry. The Institute of Mother and Child in Moscow sends out many such exhibitions.

Two exhibitions stand out this year above all others, one is the Soviet Exhibit at the World's Fair in New York and

the other the Agricultural Exhibition opened in Moscow in September 1939. Both of these are described in later pages, by English and Soviet visitors. The first number of the *Anglo-Soviet Quarterly* deals in detail with the Agricultural Exhibition and the problems with which it is concerned. We have obtained authoritative articles on the various aspects of agriculture—how the 184 million are fed and what is involved in this task.

Fortunately for those who are interested in the U.S.S.R. they do not limit exhibitions to their own country. Numbers of exhibitions are sent abroad for the edification and pleasure of those not fortunate enough to visit the Soviet Union. During the past year a number of exhibitions were shown in England. In 1939 we had an exhibition of graphic art in London which is now touring the country. In Leicester, Soviet photographers showed what they could do, at the International Photographic Exhibition, where their work was highly commended. Again in London we had the Exhibition of Children's Books and the Shevchenko Exhibition. The latter is particularly interesting as introducing to England the famous Ukrainian poet and painter of the people, almost unknown outside the U.S.S.R. This exhibition is easily portable, does not require much space, and would arouse interest among people interested in literature and in the U.S.S.R., and can be borrowed from the Society.

One of the most delightful exhibitions was that of the Folk-Art and Handicrafts held first in Liverpool at the Walker Gallery in May of 1939, and then in London at the Caxton Hall in July.

It was, and still is, a question for many people whether a State-planned and regulated society can give scope for the development of the individuality, whether it will tolerate the varied forms of creative expression essential to a cultured community. It is moreover claimed that a highly developed and widely used modern industry destroys the creative urge in people. Therefore it was very interesting and instructive to go round this exhibition and see the great variety of art-forms through which the ordinary citizen in the Soviet Union expresses himself.

It was very soon obvious that a high state of industrial development and mechanisation of industry is not necessarily destructive of the creative faculties. On the contrary, in the socialist society of the U.S.S.R. this industrial and mechanical development gave the people the leisure and the

economic security which left them free to create. There was no hint of any attempt to flatten life out, or to make the innumerable ethnological groups or nationalities conform to one pattern.

The fear that unity of political aims would result in uniformity appears groundless, judging from the work in the exhibition. The work sent in, with half a dozen exceptions, was post-revolutionary, and there were examples from every republic and from numerous nationalities.

While many of the handicrafts, like that of lace-making, carpet-weaving, Palekh work, etc., had existed long before the revolution, the carving on ivory of the Chukhots, and the fur rug, made of brown and white inch-squares of fur by members of the Goldi tribes, are entirely post-revolutionary arts. Before the War these peoples were wholly illiterate.

We learnt that the initiative for providing facilities for developing the creative instincts comes from the local inhabitants. The part of the central organisations or Government is to afford every encouragement. Thus technical schools are organised, where the crafts can be taught by the old and experienced to the young, who in their turn intend to become instructors. In these technical schools there are laboratories for experiments with materials and tools. Both the history and the science of the craft is taught. The teaching and the material in the technical schools is free, and most of the students receive a grant.

When a craft is carried on by many people, and the products are more than can be used by the people themselves, those practising it form themselves into an artel. The buying of the materials and the selling of the finished articles will be done co-operatively through the artel. It will also control the technicum, and may, if it becomes wealthy, extend its interest to a crèche for its babies and nursery-infant schools for the older youngsters.

Many of the crafts—lace-making, pottery, the making of the "tubeteykas," those wonderfully attractive skull-caps, embroidered in coloured silks or gold, worn by the Eastern peoples, toys, etc.—are carried on in the home. Others, like some of the Palekh work, some lace-making, carpet-weaving, etc., are carried on in work-rooms.

It was very interesting to notice at the Exhibition how the age-old characteristic designs of lace, or carpet, or silverwork persisted. In some cases attempts were made to adapt these to Soviet life, very often with the greatest success, though purists objected to them violently.

Thus the Eastern carpet having as its theme the Papanin expedition was for many visitors wholly successful. The blues used did give a feeling of cold, so that the visitor almost drew his coat round him. The surround of conventionalised sea-gulls and seals was a beautiful achievement.

The carpet—"The Friendship of the Nations"—depicting peoples from all the eleven republics, was perhaps not such an artistic success, and shocked those who have become used to treading on Persian versions of gazelles, or Chinese versions of birds, but who had never yet envisaged putting their foot on a human being.

Similarly the attempts of some of the Palekh artists to depict Soviet love on their lacquer boxes was severely criticised. According to these critics, the art lent itself only to the depiction of legendary love. It is true that these artists achieve their happiest effects when the subjects are conventionalised. This gives more scope to their fine technique and to the choice of colours.

It is difficult to say what were the finest exhibits. The carpets and, particularly, the silk wall-hangings (sussanahs) of Uzbekistan and Tadjikistan called forth exclamations of delight. The silk for these wall-hangings is grown locally, and at no time in its creation is anything but a hand process used.

The lace from Vologda was a beautiful example of the sincerity which underlies all this handicraft. The designs were clean and bold, and very beautiful, whether it was in a bedspread or collar.

The embroidered linen—table-cloths, bedspreads, towels, cushion-covers, dresses, blouses, etc.—showed that the hand of the Soviet peasant woman has not lost its cunning. Each district had its distinguishing design and colour. Ryazan was not to be confused with Kharkov, or Leningrad with either of these.

A set of chessmen, carved from mammoth tusks by inhabitants of the frozen north in the Omsk region, attracted much attention not only by the perfection of the work. These peoples had expressed this ancient game in the idiom of their life. The king and queen were the local soviet chairman and his wife, the bishop was a hunter complete with gun, the knights were reindeer, the castles, igloos, and so on. All the bone and tusk carving by these primitive northern people had a delicacy and a primitive directness very appealing to the sophisticated.

And how the Russians love making toys, whether it is a

set of beautiful carvings of legends or fables, mischievously gay clay figures, or a set of puppets of a children's story!

The beautiful silverwork from Daghestan was a surprise to visitors.

The Palekh work is well known abroad, but it is not known that in that region there are several centres, with artels for this lacquer work over papier-mâché, nor that each centre has its own distinct individuality.

A VISIT TO THE SOVIET PAVILION AT THE WORLD FAIR, NEW YORK

I ARRIVED in Philadelphia two days before the Soviet Pavilion opened. Here I visited friends who, though American citizens, had been born and bred in the Russia of the Tsar. With their visitor from Europe the conversation rapidly turned to Russia (which I have visited) and to the international situation.

Had I been to the Fair? I had. And what was the Soviet Pavilion like? Though it had not yet opened I was able to tell them that the Soviet was easily the most outstanding pavilion in the Fair. For apart from design the other pavilions were only temporary structures, whilst the Soviet was built of granite, stone, and marble from the U.S.S.R., and was intended for re-shipping to the U.S.S.R., there to be erected again as a permanent exhibition.

Built in a semicircle, the Soviet Pavilion has in the centre a tower of red granite bearing the figure of a young man holding a five-pointed star. This figure, in stainless steel, dominates the whole Fair. And although it is more than two hundred feet high the whole of the building has such fine proportions that it is hard to believe the figure is so large.

Article 1 of the Soviet Constitution—"The U.S.S.R. is a socialist State of Workers and Peasants"—is engraved on the column. At each end of the building is a group of stone statuary—the one on the right a group of men and women bearing arms, obviously depicting the Revolution; the one on the left a group of workers bearing the tools and products of their trades, and depicting the present-day Soviet Republics.

My Philadelphian friends decided they must go to New York, they must see the Fair, they must see, above all, the exhibition of their original fatherland, the Soviet Pavilion.

Travelling by car it was possible for many many miles before we reached New York to see in the distance the dominating, impressive figure of the Soviet youth holding aloft his five-pointed star.

My friends were, naturally, filled with anticipation and enthusiasm.

The whole of the Soviet exhibition, we found, was planned to reveal the life of the Soviet citizen in all its phases. In fact it is built around the Soviet Constitution, and almost every exhibit is supported by a continuously operated film shown on a miniature screen.

Let me give some examples. The citizens of the Soviet Union are guaranteed the Right to Work. The film, therefore, shows the workers in factories in all parts of the country.

Citizens of the Soviet Union are guaranteed by their Constitution the right to rest and leisure. Here, therefore, the film shows them in their rest homes, sanatoria, and clubs.

The Right to Education is another guarantee of the Constitution, and so the film shows the schools and universities of the country.

Citizens of the U.S.S.R. are guaranteed equality of rights irrespective of their nationality or race. So there is a film showing the different nationalities and races of that country which is in itself a real league of nations.

And then, wherever we turned, we came upon excellent paintings showing all phases of Russian life, pictures of their national heroes, Stalin, Stakhanovites and all their famous airmen, musicians and writers.

In these examples of Russian art there were no problem pictures, no products of "art for art's sake." The artists seem to have endless subjects they desired to portray, with every one of their paintings full of life, enthusiasm, and vigour.

At each exhibit there is a guide ready to answer questions. Many of them are Intourist guides renewing the friendships made with people they met previously in the Soviet Union.

There is a full-sized reproduction of a part of a Metro station, shown with its marble and granite and beautiful lighting.

My friends were overcome with emotion. These people, reared in the Russia of old, stood with tears in their eyes as they gazed at this evidence of the land of their birth placed before them in miniature.

There was only one piece of machinery. It was a tractor

dated 1939. It stood alongside a wooden plough dated 1917. No comment was necessary.

There were scale models of various electrical undertakings and plants with charts indicating their output, which were keenly studied and discussed.

At a large round table there were beautifully bound copies of the Constitution printed in a dozen languages, and at another table books of fiction, poetry, together with portraits of the authors, hundreds of newspapers in scores of languages, handicraft products, carpets, tapestry, china, and glass.

Eventually we had to go. Our visit had to come to an end. And it did so before we were able to visit the Concert Room, whilst the Restaurant was not due to open until the following day.

On our drive back to Philadelphia we discussed all we had seen. One of my friends and I had been several times to Russia. That it was a really fine Exhibition we all agreed. But the best comment I have heard on the Russian Pavilion was made on my journey home to England.

I returned with a party of about sixty British farmers. They had toured Canada and then spent one day at the New York Fair. All of them had visited the Soviet Pavilion and had agreed it was the outstanding exhibit. If the Exhibition was a true illustration of present-day Russia, then, these cautious matter-of-fact British farmers agreed, Russia must be a fine country.

You and I who have been to Russia know that it is so.

MAURICE BROWN.

AT THE NEW YORK WORLD'S FAIR

WITH each exhibition the technique of Soviet showmanship improves. While the Soviet exhibit at the Paris Exhibition had its critics as well as its partisans, the Soviet Pavilion at the New York World's Fair has earned praise all round. In size the Soviet Pavilion ranks with the largest. The theme of the Fair, "The World of To-morrow," was particularly apt for the U.S.S.R. In that country all the resources are directed to making the world of to-morrow a reality to-day. Every day sees some beginning of the world of to-morrow. Thus all the exhibits—industrial, economic, scientific, cultural—have an immediate implication. They are not ideas or inventions in cold storage. They are put into the widest practice to improve the lot of the workers. All that the visitor sees in miniature is happening in life-size every day in the U.S.S.R. The Soviet designers and artists have succeeded in conveying this impression to the visitor so that he feels he is really seeing the country.

With unlimited wealth which has to pay no tribute to private interests, the Soviet workers have wrought their exhibits from the most varied and the richest materials: nine different sorts of marble, polished granite, semi-precious stones, wrought glass, stainless steel and porcelain. Both in design and in materials the Pavilion is expressive of the wealth with which the country abounds.

The architecture is striking. The exterior is decorated by the eleven emblems of the Union Republics. In the centre, between the two wings, rising sheer, is an obelisk fifty metres high; standing on this, proudly holding aloft a red ruby star, is the seventeen-metre figure of a Soviet worker. The effect of this piece of sculpture, executed in glistening stainless steel, by the artist V. Andreyev, is breath-taking, expressing as it

does the hope, the striving, and the achievement of humanity.

In addition to its main pavilion the U.S.S.R. has its own section in the Pavilion of Nations where the social and administrative structure is shown. The largest hall in the main pavilion is appropriately the Hall of Labour, and here, at once attracting attention, is a vast panel depicting lively and eager people—workers famous in industry and agriculture. Wherever the visitor turns, whatever he looks at in this hall, he is all the while conscious of this panel. This surely shows a supreme understanding of values: not highly complicated machines, not scientific technique—but the workers who create them. The text on the Order of the Red Banner of Labour—"Labour in the U.S.S.R. is a matter of honour, glory, valour, and heroism"—follows naturally from this. The exhibits in this hall explain socialist labour and its implications, and electrified figures, illuminated maps and charts, which move to show developments, explain briefly the essence of state planning, how it is possible on so vast a scale and with so much precision. Here one learns that during the last ten years alone the U.S.S.R. has built 3150 new factories, mines, and mills; that Soviet industry has grown more than ninefold in comparison with the pre-War level; that a number of new industries unknown in Tsarist Russia have been created. Here a series of pictures and charts illustrate the various branches of Soviet industry, showing the place occupied by the U.S.S.R. in certain branches of world economy: first place in the production of harvester combines, second place in the production of tractors and machine tools, third place in the production of electricity and superphosphates. Altogether the U.S.S.R. occupies second place in the world in the gross output of its heavy industry.

The visitor's attention is held by the shining steel, framing the complex mechanised structure within it, which is an exact model of the Magnitogorsk Iron and Steel Combine. Behind the blast furnaces and steel mills is shown the town of Magnitogorsk, surrounded by mountains and plains, with trains running along the busy railway lines. By a clever use of electricity the town is shown flooded with sunshine; gradually the sun sets and, as night falls, lights appear in the numerous shops. One even gets a vivid impression in the darkness of metal being smelted. The model shows a tiny locomotive hauling several empty metal containers stopping at one of the blast furnaces; a light flashes, the containers are filled with liquid pig-iron, and the train leaves for the

open-hearth furnaces. For a moment the visitor forgets that he is looking at an exhibit. This exact model is 1/750 actual size and is composed of 3000 parts. This is typical of the care and skill and lavishness with which all the exhibits have been constructed. It took much thought and ingenuity on the part of Soviet engineers to solve the problem of organising uninterrupted traffic of tiny model trains, each of which has to run from 130–150 kilometres, and has automatic direction of its movements. Examples of workers' newspapers and a model of the workers' club complete the picture of an industrial city.

After industry, agriculture. Here too one is met by staggering figures of rapid development: over 483,500 tractors and 153,500 harvester combines at work, over 95 per cent. of land belongs to collective-farms. A huge panorama, completed by models, similar to that of the Magnitogorsk exhibit, gives a picture of a successful collective-farm. The land stretches away towards the horizon, a patchwork of black and gold—freshly ploughed soil and fields of ripe wheat. The tall poles of the high-tension electric-power cables reach to the sky. On the horizon is the slender building of a grain elevator. Nearer to the visitor, on the banks of a pond, its waters rippling in the light wind, stands the white boat-house of the collective-farm. Farther on is the village scientific laboratory and club, and in the background the cottages where live the collective farmers; then the machine and tractor station, with its repair shops. The sun gradually sinks behind the hills and night sets in. Interesting and instructive exhibits on either side of this model are two smaller panoramas showing pre-Soviet and Soviet agriculture. A large section here is devoted to the Lenin Collective-Farm in the Bobrinsk District, one of the best of its kind. Here may be seen the peasant at work and at play. The dairy department, stud farm—excellent race-horses are bred on this farm—sheep department (fine breed Rambouillet), and pedigree pigs, all are shown. Much of the farming success is due to mechanised aid. Here on a map is to be seen the work of machine tractor stations. The agricultural science department of a collective-farm is shown here, and illustrates how the work of Michourin, Tsitsin, and Lysenko is being applied to agriculture. Exhibits are shown of perennial wheat, vernalised cereals, and samples of remarkable fruits grown in the Michourin orchards. This modest display gives a slight indication only of the scale on which agricultural research is being carried on in the Soviet Union.

Leaving agriculture, two panoramas confront the visitor, both illustrating electrification. The first shows present achievement; as an example, the huge Lenin hydro-electric power plant on the Dnieper and the aluminium, ferro-alloid, coke and chemical plants, engineering works, glass works, and mills manufacturing high-grade steels, that have grown up around it. These industrial giants have been built in the course of six years, and they all form part of a uniform plan. This exhibit is 1/400 actual size. The other panorama depicts what will be accomplished in the near future. It is a miniature of the Kuibyshev development on the Volga, the largest hydro-technical project in the world, the construction of which began over a year ago. The panorama of the Kuibyshev development scheme is 1/500 actual size. Across the Volga is a large dam built of earth; over the dam towers the hydro-electric power plant and on the right bank of the river are the sluice locks. With the help of an ingenious mechanism the Volga water, or rather the water in the panorama, comes down in a mighty waterfall and stretches as far as the eye can see. Between the two panoramas is a large electrified map, which gives a graphic description of the electrification plan, the construction of waterways, canals, and hydro-electric power plants, and the reconstruction of the Volga under the Third Five-Year Plan. Three hundred architects, hydro-technicians, electricians, and lighting experts took part in preparing these models of the Soviet Union's outstanding projects of construction.

Next is the Hall of Culture and Rest, where panoramas illustrate famous Soviet health resorts at Sochi, Kislovodsk, and Borovoy. The forests, the sea, the mountains, the fine old mansions, the magnificent new buildings, all are faithfully depicted. The panorama illustrating the Artek Pioneer Camp on the southern shores of the Crimea gives some indication of the care which the Soviet Union lavishes on its children, some indication of the great possibilities for their all-round development. Other exhibits here, such as nurseries for rural areas, schools, technical schools, and universities, show the high regard for workers and children. There is an interesting section in this hall devoted to children's models, and among the exhibits are a tiny electric motor, one-third the size of a match-box, the ingenious invention of Kim Meserov, a schoolboy from Tbilisi. The motor weighs 351 milligrams and works perfectly. Another model is that of a streamlined locomotive of the latest type, the "Joseph Stalin," built of aluminium. The length of this model, designed and

constructed by Sasha Syromyatin, is 26 centimetres, and it is equipped with a working steam engine. Standing next to the locomotive is a tiny model of a destroyer fully equipped with all the necessary armament; when the gun turrets turn, searchlights appear on deck, the whole ship is floodlit and the engine begins to work. The designer of this destroyer is a Leningrad schoolboy, Ivan Bubnov. An interesting model of a hydroplane equipped with a tiny gasoline motor comes from a Kharkov boy. His model flew 25 kilometres 542 metres in a non-stop flight, thus establishing two new international records for long distance and time in the air.

The second floor of the pavilion is given up to the Hall of Arts. Here is a superb collection of working models of stage sets, which together with a collection of paintings and photographs bring the Soviet theatre vividly before one. The hall abounds in every aspect of Soviet art, engravings, examples of famous Palekh work, paintings, sculpture, design, etc. It is soon realised that in the Soviet Union art is for all the people, that it is applied to their daily life, woven into the pattern of their existence, and thus gives rise to definite characteristics by which nothing in it is aloof, nothing incomprehensible. In this same hall is a huge map of the U.S.S.R. made of semi-precious stones.

There are immense panels depicting Soviet heroes, and panoramas showing the unity of all Soviet peoples. They have the directness and appeal of the best posters; they make fascinating studies of the varied life of the U.S.S.R. Months of work by over twenty artists contributed to the execution of these panels and panoramas.

Particularly interesting is the Hall of Science, Literature, and the Press. A well-designed map of metal shows by means of lights where the thousand scientific institutions and laboratories, which employ over 30,000 scientific workers, are situated. A diagram shows the development of the Academy of Science, which grew from 53 institutions in 1917 to 150 institutions in 1938. In the centre of the hall in the place of honour hang portraits of famous scientists—Lomonosov, Mendeleyev, Timiryazev, Pavlov, and many others—with manuscripts in Russian placed below each portrait. Around are many interesting relics of scientific giants, and a special case is devoted to the younger generation of scientists: Lysenko, Tsitsin, Papanin, and others. Inspection of the literature and Press stands shows the almost incredible increase in output; books sold in editions of millions, Soviet books, classics, foreign books, ancient classics; books trans-

lated into ten, twenty and thirty Soviet languages. As for the Press, it seems to the visitor that every Soviet citizen is surrounded by national, regional, local, art, music, professional, and political papers.

In the Arctic Pavilion may be examined the plane in which Chkalov, Baidukov, and Belyakov made aviation history when they flew to the U.S.A. across the North Pole. The dome of this pavilion is designed to represent the northern hemisphere, and below it is a map of the Arctic regions of the U.S.S.R. and the U.S.A. Electric lights illumine the route of Soviet transarctic flights, of the major Polar expedition, and the drift of the wintering station at the North Pole. In this pavilion is the tent, complete to the last detail with the equipment used, in which Papanin, Krenkel, Feodorov, and Shershov spent 247 days on the drifting icefloe in the Polar regions. Ingenious lighting creates all the illusion of sunrise and sunset, of cloud and mist and heavy snowfall.

Although it would be necessary to return many times to the Exhibition for an adequate realisation of the achievements of the U.S.S.R., of its wealth and its possibilities, even one visit will show that this wealth is at the disposal of all the workers, that the achievements are the result of the co-operation of the whole 184 million inhabitants of the U.S.S.R.

THE ALL-UNION AGRICULTURAL EXHIBITION

AN IMPRESSION

IN August the Exhibition was getting 65,000 visitors a day,¹ and 1,290,000 had passed the turnstiles by the end of the month. At least, so I am informed; for, to be honest, I have not counted either the acres, or the bricks, or the bushes, or the pounds of bread, or the people—not to mention the cows, sheep, horses, camels, and other creatures, great and small, that make up this Exhibition. But this I can assert from personal observation, both at the opening and on several later occasions before and after dark—it is a big show.

In his opening speech Molotov declared "*The sooner we ensure fulfilment by the entire mass of collective- and state-farms of the indices established for the participants in the Agricultural Exhibition, the sooner we shall ensure fulfilment of the entire Third Five-Year Plan for agriculture.*" He claimed that the planted area belonging to individual farms now constitutes less than one-half of one per cent., that the number of state-farms has reached almost 4,000, and of collective-farms 240,000. "*This year, providing harvesting is well organised, we have every reason to expect a harvest of 7 billion poods of grain.*" (The Plan demands from 7 to 8 billion.) "*In stock breeding, in which we lagged most, we have also had an important improvement during recent years. . . . Our agriculture is now better equipped with modern technique than that of any other country.*"

This Exhibition is the first full-scale attempt to create a synthesis of the whole Soviet Union. It is not just gigantomania that makes it a big show; too miniature a microcosm would simply fail in its purpose, when the microcosm consists of eleven Soviet Socialist Republics, of which one portion alone—the Russian Soviet Federative Socialist Republic—contains five Territories, nineteen Regions, seventeen Auto-

¹ Numbers were deliberately restricted to ensure greater comfort for visitors.

nomous Soviet Socialist Republics, and six Autonomous Regions. From the Arctic to India, and from the Ukraine to Vladivostock—what is bounded by these extremes can be, and indeed must be, considered as a league of nations. One cannot forget the striking splendour of some of the national representatives, with their gorgeous costumes and shaggy headgear: Turkestan and the Steppes of Central Asia, Buryat-Mongolia and the frozen Tundra, have sent their delegates, looking still a little bewildered (perhaps not least at the representation of their own region, which somehow never struck them like that when they were at home), but knowing that with their laboriously learned Russian—or even without it, for there are plenty of interpreters—they can enter in some way into the construction of a vast commonwealth, which with the help of their own efforts may become the abundant heritage of all the peoples who inhabit it. Leaving politics and crises aside, as such an Exhibition in some ways enables one to do, one cannot help feeling that the degree of unity secured in the harmonisation of such varied parts promises well for the future integration of the Union.

An example of the good taste which welds this show into a pleasing unity is the section which in a Western "Empire Exhibition" or "World's Fair" would be the amusement park. You may say that this Soviet pleasure garden is tame or dull: that is true if you mean that it cannot give you the thrill of a Great Racer or the titillation of "Over the Falls." But these terraced restaurants by the lake, the abundant and healthy-looking fish swimming past, the fountains, the flowers, the lighting—even the absurd artificial cocks, hens, horses, rabbits, cows, which stand, all out of scale, on little islands among huge artificial water-lilies—even these are in sufficiently good taste to appear as harmless whims not out of key with the whole effect. Some of the bands may blare over-loudly and with too crude a jazz as the evening goes on, but the blatant vulgarity of a Western fair-ground is not to be found here.

Considering that no two of the 52 pavilions are alike, and that many of them are in novel styles invented for the occasion—for instance the Palace of Meat (though they don't call it that), which is one of the cleanest and most attractive butcher's shops imaginable, combined with a sort of museum of prize-stock raising, housed in a pavilion of strikingly bold design with symbolical decorations—the degree of co-operation represented by the resulting harmony is remarkable. Professor S. Chernyshev, the Chief Architect, may speak for

himself about one aspect of this: "Outstanding masters of popular art-craft, famous artists of Palekh and Khokhloma, embroiderers of the Ukraine and Tataria, carpet weavers of Turkmenia, wood carvers of Zagorsk (Moscow Region), Georgia, and Khirghizia have contributed to the decoration of the pavilions. Their work has lent the exhibition a vividness, freshness, and artistic colour all its own. In our striving for originality, and for the utilisation of the artistic genius of the peoples of the U.S.S.R., we did not shut our eyes to the great heritage of the past ages and of peoples. On the contrary, in our work we were guided by Lenin's maxim that the building up of a new society was inconceivable without the utilisation of the cultural heritage of all mankind." The specialist's point of view may be summed up in some words of Sir John Russell, Director of the Rothamstead Experimental Station: "I observed that the lay-out of the pavilions allows one to study agriculture either from the point of view of geographical distribution, of individual collective farm production, or of the original organisation of agricultural production as a whole."

The main pavilion of the whole Exhibition, before which the opening ceremony was performed, is itself the microcosm of this microcosm, for in its halls a characteristic view of every region represented is built up in a long series of dioramas, together with a concentration of slogans, texts, pictures, statues, expressing the general aims for which Soviet agriculture has stood in its context of Soviet organisation and "culture." One of the most striking and most popular of the national pavilions which form the main square—on which probably 10,000 people were standing when Molotov made his opening speech—is that of Stalin's home country, Georgia. Its climate gives it the richest display of the fruits of the earth, and this is emphasised by a huge glass-house, a sort of arboretum, opening off the very lovely courts and halls of the main building, with their delicate columns and mosaic floors. Here, if you can stand the heat, you may walk among the heavy-scented vines; the orange, lemon, grapefruit, apple, plum, tangerine, banana, and many other fruit trees; the tea-plants, the agaves, laurels, roses—not to speak of cucumbers, tomatoes, melons, eucalyptus, bamboo, cork-trees, and palms. It is not only vegetation that Georgia is exhibiting: there are photographs and moving pictures, samples, and ingeniously contrived displays to show the iron and steel works, machinery plants, textile mills, tea-packing factories, coal mines, and canneries—all of which are

novelties in that region. A painting of the Tkvarcheli power station (100,000 kilowatts) appears as a nucleus to a demonstration of the electrification of Georgia's farms and villages.

One observer, trying to sum up the impressions of the whole Exhibition, said: "Every conception about geography and climate has been overthrown here. Cotton grows beside hemp, and the antonovka apple is on excellent terms with the lemon. Clusters of Crimean grapes calmly hang over Kaluga cabbage, and lilacs bloom in August." Lest this be understood as irresponsible perversity on the part of the Exhibition designers, we will note the words of Michurin, the "plant wizard" who died a few years ago, and who set such remarkable standards to the research workers in Soviet agriculture. Michourin wrote: "Apple, pear, plum and cherry-trees must be moved closer to the Arctic Circle; grapes, apricots, and peaches must be moved to the central regions of the country and even further north." Some of the achievements of the Michourin school on view at this Exhibition are a cross between the Russian apricot and the North American sand-cherry, a thornless gooseberry (gooseberry crossed with currant), and one plant which produces both potatoes and tomatoes. This last, which is being widely planted in parts of the Arctic, realises the hope expressed by the American botanist Luther Burbank, that future experimenters would be able to succeed where he had failed.

The pavilion of Uzbekistan is one of the closest rivals to the Georgian. Though from the same latitudes it has less wealth of produce, but its slender columns are even more delicate than those of Georgia, its design more subtle, and the costumes, music, and dancing of its natives more fascinating.

In sharp contrast to it is the Arctic Pavilion, tall, bare, and white, surmounted by the wings of a pioneering aeroplane, moulded in cement to the size of the whole roof. On entering, the visitor finds himself standing in the bows of an ice-breaker, within short range of seals and polar bears (stuffed but well mounted on imitation ice-floes)—the whole effect giving the feeling of magic transportation from one extreme to another.

The Volga region shows a huge model of the projected hydro-electric station at Kuibishev, with cascades of water pouring down the façade of the pavilion; Tadzhikistan presents a symphony of cotton, in every stage of treatment, with a huge set-piece of the kind of montage which Soviet publicity has specially developed, consisting of an enormous mountain landscape as "backcloth," built into an alcove in the local

style, with lighting effects, a setting of massed cotton-plants, painted wall-panels, texts, slogans, statistics, and a transparent diagram which can be read against the wild landscape of the country.

It is the national and regional pavilions which first attract the non-technical visitor, and if he is not careful take up all his time. Of the other components of the Exhibition the most striking is the steel hangar standing behind the giant statue of Stalin on "Mechanization Square." This splendid piece of structural engineering (built, I was told, in three weeks) makes a sort of Crystal Palace open at both ends, so that the crowd passes through on its way to and from the lake and restaurants. At different levels along both sides, in some cases moving on conveyer-belts, are drawn up specimens of all the latest types of tractor, combine, thresher, multiple-plough, separator, mobile power station, and a dozen other kinds of machines, including a couple of aeroplanes designed for spraying orchards and fields.

Another major attraction is the "New Aspects of the Village." Here you may walk into the soviet-house, school, hospital, machine and tractor station, club, post office, stables, cowsheds, and other buildings of a modern "collective-farm." Each of these buildings is an exact copy of one to be found in some actual Soviet village. Mobile talkie-units give shows under the trees, as they do each summer in remote villages all over the Union.

Some visitors find it hard to leave the "Young Naturalists" Pavilion, in which boys and girls, aged from nine to sixteen, have collected their best exhibits in every field, from working-scale models of practically every piece of machinery connected with agriculture (all set in motion by a remote control which acts on the word of the young technician who invented it) to samples of successful plant-breeding by young Michourinites, and a small Zoo of beasts, birds, and insects raised or caught by children. But one might fill books with descriptions, or even bare catalogues, of the components of this Exhibition; for instance one small item in a Moscow paper reads: "One of the eight pavilions of the poultry city of the Agricultural Exhibition has organised a display of apparel made from the skins of geese. This section shows that it is possible to manufacture warm children's coats, hoods, jackets and other apparel from goose skin." Well, to be honest again, I do not remember seeing any poultry at all, let alone a poultry city of eight pavilions. But that only proves that in a big show one can't see everything.

Of course there are other side-shows besides lakes and restaurants. There is the Polar camp of Papanin, there are theatres and concert-halls for the performers of many nations, and for sport there is ten-acre "city" with accommodation for 50,000 spectators (statistics must have a final fling), before whom 600 record holders will appear in all manner of contests, including the Georgian game of *lelo*, described as "something like cross-country Rugby football," and a game played in the Kara-Kum Desert on cool evenings with a phosphorescent camel-bone instead of a ball.

It would be possible to argue far into the night over how far the Exhibition accurately represents the present level of achievement in the whole Soviet Union, but there can be no dispute about its being not only a big but a very good show.

D. SHILLAN.

The Arts at the Agricultural Exhibition

The Agricultural Exhibition is not limited to agriculture. As much attention was paid to the form as to the content of the Exhibition. There is lavish display of architectural skill and ability, lavish display of design and painting. There are exhibitions of dramatic and musical skill given daily by the different republics and national groups.

The *Architecture* is extraordinarily varied. Each republic had its pavilion designed by native architects and artists to express the native idiom. The pavilions range from the cold severity of a northern region to the exotic style of an Asiatic republic. Slender flute-like pillars of Uzbekistan, brightly coloured Byzantine decorations of the Caucasus, designs and colours of startling splendour of Tadjikistan, the severely functional form of Chuvashia, all claim the attention of the visitor. Besides the Union and Regional republic pavilions there are zonal pavilions, each expressing through its architecture and decoration its particular characteristic. Severely functional are such pavilions as the refrigerating pavilion, the fruit canning and preserving pavilion, the machinery pavilion, and so on.

Pictorial Art has played a very important part in the Exhibition. Obviously in an exhibition of such dimensions, with halls so vast, pictures, however big, would be unsuitable. Soviet artists, realising this, have revived and developed the panorama and diorama. They have found it a medium eminently suitable to Soviet life. It makes it possible to express the scale on which Soviet life is organised: a country of eleven republics, one-sixth of the world's surface, ranging

from the frozen north to the sub-tropical south, a country of large state and collective-farms, of large-scale industry.

Under the direction of A. A. Labas and M. M. Plaksin a group of artists have executed eleven panoramas for the eleven republics, which in synthesised pictures reflect the life of all the Union republics, and are one of the most impressive art exhibits at the Exhibition. Equally striking is the panorama of the Artek Pioneer Camp. This form of art makes use of varied materials at the same time, utilises artistic representation, and is free to synthesise a picture so that one panorama can represent the whole of the R.S.F.S.R., an area embracing the North Pole, the central belt, and the Volga, an area embracing a huge industry and an almost limitless agriculture.

The panoramas of the republics have been painted in the Hall of the Constitution in the main pavilion of the U.S.S.R. The hall, which is white, is flooded with a pale-gold light from above. In the centre is a panel depicting the historic session of the Eighth Congress of the Soviets at which the Constitution was adopted. By a clever arrangement of lights the impression is given of a window thrown open through which streams sunlight and air, showing the varied landscapes of the Union. These are the eleven republics. Each panorama is framed by a lace-like design of national motifs. The landscape is an actual construction made from various materials—silk, tulle, solid materials such as anhydrite, etc. The colours are blended into one harmony strengthened by light, which gives it the appearance of being alive. Each republic has its own range of colours characteristic of its landscape. For example, in Armenia the picture acquires a rose-and-violet hue from the tulle.

The picture may also include an individual building, a construction, an agricultural crop, which represents the special features, the wealth, or the achievement of a particular republic. For example, in the Uzbek republic cotton is presented as a jewel set in a frame of mountain reliefs which have the appearance of an arabesque design. The background of the panorama is formed by diaphanous silk on which the sky and clouds are painted in delicate tones. Occasionally a mountain silhouette can be descried through this.

Georgia contrasts with Uzbekistan. Its centre is occupied by a hill on which stands a lemon hot-house. To the right is a mountain stream with a hydro-power station. In the foreground are tea plantations and a tangerine orchard, set off by a background of palms. On the slopes of the

mountains flocks and herds are grazing, at the foothills there are collective-farms and a tea-factory, in the distance little houses, and still farther off is the sea, with vessels on its waters. All this is permeated by a delicate haze. Suddenly the crests of the waves appear to move, sparkling and rolling on to the coast. The motion is caused by electric installations. This method of making light shimmer on the water is used in all the panoramas.

The visitor leaves the panoramas feeling that he thoroughly knows the republics of the Soviet Union.

Soviet artists have been extraordinarily successful with this method of descriptive art.

Apart from the panoramas there are many large canvases depicting great figures in Soviet industry and agriculture, great explorers and scientists; others depicting life on collective-farms, life among the Red Army and in industry. As part of a huge exhibition they are very successful.

Sculpture is one of the most successful of the arts at the Exhibition. Vera Mukhina's sculpture, which adorned the Soviet Pavilion at the International Exhibition in Paris, is a splendid introduction. The main arch is decorated with Motovilov's beautiful sculpture of a collective-farm man and woman. The entrance hall is a gallery of sculpture of heroes of the Soviet Union. Out of doors sculpture is used prolifically to give expression to Soviet life.

Music and drama play an important part in the Exhibition. There is a vast open-air theatre, there is a covered theatre, and there are out-of-doors and indoor concerts. The performers are both amateurs and professionals of the different republics. Native music is played by native musicians on native instruments. Plays in a variety of languages are performed by a variety of national companies.

The arts and crafts practised by collective-farm men and women, which have developed so extensively in recent years, add colour and beauty to the halls. Beautiful silken carpets, gay embroideries, handsome lace, exquisitely carved wood-work, Palekh work, silverwork, all go to show how the zest for living has increased among the peasants. They show that improved agriculture is providing the leisure for creative self-expression. This amateur art of all kinds is found side by side with professional art. The Agricultural Exhibition has served as a meeting-place for the arts of the whole Union.

THE U.S.S.R. AGRICULTURAL EXHIBITION

IT was the second Congress of Collective-Farm Workers, in 1935, which gave birth to the idea of organising an All-Union agricultural exhibition. The aim was to have an exhibition showing the advancement in agriculture and thereby stimulate the peasants to greater efforts in raising quality and quantity. It took several years to organise but the result was well worth the work entailed.

The Exhibition is situated on the outskirts of Moscow, near by the village of Pushkino, and covers an area of nearly 340 acres. It is in fact a small town, to which has been brought the wealth of the country-side of one-sixth of the world's surface.

Palm, banana, lemon, and orange trees, the luxuriant orchards of the sub-tropics, have been transplanted and have taken root on Moscow soil. In glass-houses grow cucumbers and tomatoes.

In the fields grow more than 50 different sorts of wheat, 27 sorts of oats, 34 sorts of barley, and so on. There are tea and tobacco plantations, there are orchards with a great variety of fruits. Into the construction of the pavilions has gone a great variety of materials: granite, marble, wood of all kinds, brick, and concrete. There are Union Republic pavilions, autonomous pavilions, regional pavilions, zonal pavilions. Various departments of agriculture have their own pavilions. The livestock section has a number of pavilions, and the food industry boasts pavilions for tea, canned goods, meat, tobacco, beers and liqueurs, and ice cream—with architectural design appropriate to their purpose. Altogether there are 250 buildings. In many of these is displayed the most up-to-date agricultural machinery. In every pavilion work is being carried on, so that the visitor can learn from actual practice.

Applications for permission to exhibit were received from

29,859 collective-farms, 1796 state-farms, 981 machine tractor stations, 13,067 dairy farms, and from 189,017 individual farmers and organisers of agriculture. After a careful weeding out, 15,220 collective-farms, 808 state farms, 268 machine tractor stations, 11,004 dairy farms, 383 scientific institutions, and 155,821 individual farm workers were allowed to exhibit. Those who were unsuccessful in 1939 will have another opportunity in 1940, when they can make application again.

By its size, by its all-embracing character, by its lavishness, by its beauty and utility, it is a unique exhibition.

As befits the Region of the capital, the Moscow Pavilion is one of the outstanding ones. The building is constructed on severe lines in harmony with the architecture of modern Moscow. It has been built so as to give an effect of light and buoyancy, an effect produced by the natural daylight with which it is lit. The pavilion consists of four halls: the introductory hall, the Ryazan hall, Tula and Moscow halls. A sweeping staircase lends the building dignity.

Sculpture and carving give an impression of strength and richness. Ceilings are painted, showing scenes from the life of the Region.

The Moscow Region is famous for heavy industry and the Moscow hall shows its industrial achievements. It also shows how the task of collective-farmers to transform the Moscow Region from a consuming one to a producing one has been accomplished with the aid of large-scale mechanised agriculture. A number of state and collective-farms give ample testimony to their progress in improving yields, in the introduction of new plants, and in improving strains.

On stands can be seen the examples of their labours: vegetables, fruits, grains, dairy produce, etc. A mechanoscope (a kind of automatic magic-lantern) adds to the visitor's knowledge by a continuous-slide display of the agro-technical methods used on the farms to attain success.

A REVIEW OF ACHIEVEMENTS

The U.S.S.R. Agricultural Exhibition, which opened in Moscow on 1st August 1939, is a country-wide review in Soviet development and achievement in agriculture. Nearly 200,000 exhibitors—collective-farms, state farms, machine tractor stations, stock-breeding farms, as well as individual farmer members of these collective units—make a report of

their achievements, of their successes, to the entire Soviet Union and to the Soviet Government.

Collective-farms and state farms, individual collective farmer-women, who gathered 500 and 1000 kilograms of sugar-beet per hectare (400 and 800 cwts. per acre), brigade and sub-brigade leaders from the cotton and grain growing districts, tractor-drivers and combine operators, milkmaids, women cattle-tenders, shepherds, Soviet scientists, agronomists, zoo-technicians, scientific institutions and selection stations demonstrate at the Exhibition the strength of the agriculture of the republics, territories, and regions of the Soviet Union.

Vast as the Exhibition is, it is more imposing by its achievements than by its size; it shows what the free people, who have become masters of its land and its wealth, have achieved and are capable of achieving.

Collective-Farm Square

The principal buildings of the Exhibition, 162 in number, are situated on an area of 340 acres. In order to make the round of the Exhibition it is necessary to walk more than six miles along its asphalted roads and planted avenues, and several days are required to inspect all its pavilions.

The monumental piece of statuary "Working Man and Woman," by the sculptress Vera Mukhina, which embellished the Soviet Pavilion at the Paris World Fair last year, has been erected on the broad paved highway leading to the Main Entrance of the Exhibition. A spacious thoroughfare runs from the Main Entrance to the Collective-Farm Square through the Tractor Avenue. In dimensions this square is only slightly smaller than the famous old Red Square of Moscow. Collective-Farm Square is surrounded with flowerbeds, lawns, and avenues planted with various kinds of trees. The pavilions of the Union republics, as well as individual zonal pavilions, stand round this square. In the centre a fine fountain, among bushes and flowers, sends jets of water high into the air.

The characteristic features of national art are reflected in the architectural designs of the pavilions "Georgia," "Armenia," "Azerbaijan," "Turkmenia," "Kirghizia," and others.

They are magnificent edifices, ornamented with sculpture, carving, and painting executed by masters of folk-art. These ornamentations express the flourishing of each republic's agriculture through its national motifs, which are age-old.

The interior of each pavilion reflects the struggle waged by leading agriculturists for high crops, for record yields of milk, of sheep shearing, for the development of Soviet science, which has such great achievement to its credit.

At the entrance to Collective-Farm Square rises the "Main Pavilion," with a lofty tower built to the design of the late Academician Schuko and Professor Helfreich. The emblem of the Exhibition—the statue "Tractorist and a Collective-Farm Woman"—is mounted on the tower. The Main Pavilion is embellished with the arms of the U.S.S.R. and of the eleven Union republics.

On the further side of the square stands the pavilion "Ukraine." Sculptural groups near its arched doorway, decorated by national ornamentations, reflect the wealth and the culture of the Ukrainian S.S.R. The interior of the pavilion is decorated with rugs, pottery, embroidery, etc., the work of hundreds of Ukrainian masters of folk-art.

The Soviet Ukraine is the birthplace of the Stakhanovite movement in many spheres of economy. Ukrainian collective and state farms, machine and tractor stations, and individual advanced workers of agriculture have indeed much to show at the Exhibition, and the collective and state farms of other regions can learn a great deal here.

About 60,000 exhibits are displayed in the pavilion "Ukraine." The finest of them are extensively displayed on stands—the Lenin Collective-Farm of the Kamenets-Podolsk Region, the Chkalov Grain-Producing State-Farm, the collective-farms "Chervona Zorya," "Iskra," "Chervony Peredovik," and others.

The Lenin Collective-Farm is a millionaire. It has four farms—dairy, pig-breeding, horse-breeding, and sheep-breeding. During 1937–1938 it gathered a harvest of 35 cwts. of grain per hectare on an area of 1326 hectares, the average sugar-beet crop in this collective-farm amounting to 812 cwts. per hectare.

The most progressive people, the masters of agriculture, demonstrate their achievements here. Savva Okhota, awarded an Order of the U.S.S.R., Sub-brigade leader of the "Chervony Peredovik" Collective-Farm, obtained 2,124 cwts. of sugar-beet from each hectare. Chalova, a woman sub-brigade leader in the "Novy Svet" Collective-Farm, gathered 2,065 cwts. of sugar-beet per hectare. Khobota, a milkmaid of the "Chervona Zorya" Collective-Farm of the Sumi Region, obtained an average milk-yield of over 13,200 pints per cow in 1938. Marfa Lemeshko, who tends calves in the

Shevchenko Collective-Farm of the Dniepropetrovsk Region, raised over 1000 calves in the course of ten years of work. Her calves show a daily increase of over 1 lb. in weight.

The work, the everyday life, and the culture of the collective-farms of the Ukraine unfold before the eyes of the visitors, extensively displayed on stands, in a multitude of photographs, on slides mechanically replaced, and on electrified maps.

The Moscow Hall of the pavilion—"Moscow, Ryazan, and Tula regions"—displays the present-day Soviet capital and the collective farmers of the order-bearing Moscow Region. In the course of Two Five-Year Plan periods the Moscow Region has been transformed from a consuming into a producing region and has attained high yields in agricultural crops.

In the eight halls of the pavilion of "Leningrad and the Northern Republics" are displayed the achievements of the Archangel, Vologda, Kirovsk, Leningrad, and Sverdlov Regions, and of the Karelian, Mari, and Chuvash Autonomous Soviet Socialist Republics. The opening up of the natural wealth of the raw material and power resources have enabled a powerful socialist industry and a large-scale mechanised agriculture to be developed in these regions.

The pavilion "Siberia" demonstrates the tremendous wealth of this second granary of the Soviet Union. A considerable place is devoted in the pavilion to a detailed display of the methods of the Yefremov movement, which has largely developed on the fields of Siberia in the course of the past two years.

The initiator of this movement, the sub-brigade leader Yefremov of the "Iskra" Collective-Farm, applied the most modern agro-technique to the work of his group, and attained high crop yields. The work of Yefremov, a deputy to the Supreme Soviet of the R.S.F.S.R., is displayed not only in the pavilion "Siberia" but also in the Main Pavilion, side by side with the achievements of outstanding Soviet scientists.

Near each pavilion are plots planted with the respective native flora. Seven thousand trees of all zones of the country, from the Arctic to the sub-tropical latitudes, are collected there. Thus, the pavilions of the Transcaucasian republics are surrounded by lemon-trees, tangerine-trees, magnolias, and other trees brought here from Transcaucasia. Slender poplars surround the pavilion "Ukraine." Mulberry-trees and almond-trees grow near the pavilions of the Central Asiatic Republics.

The New Life in the Village

To one side of the Main Avenue of the Exhibition, on an area of thirty acres, is situated a section known as "Innovations in the Village." Here every collective farmer, state farm, machine and tractor station worker, as well as other visitors, can acquaint themselves with the finest examples of school buildings, nurseries, clubs, collective-farm maternity homes, administration office of the agricultural artel, the village soviet, the machine and tractor station, etc. The old, pre-revolutionary village knew of no such buildings, nor of the purposes they serve. A deep gulf separates to-day's Soviet village from the miserable and squalid village of Tsarist Russia.

The visitor to this section of the Exhibition can learn how many new schools, children's nurseries, clubs, village reading-rooms, collective-farm laboratories, etc., were built on the collective-farms during the first two Five-Year Plans, how many peasant children have graduated not only from secondary but also from higher education institutions, how the face of the village has changed and how the division between town and village is gradually being eliminated.

The Exhibition displays still another new feature in the Soviet land—the movement of young naturalists and experimenters. A special pavilion and an open plot for experiments is allotted to them. Numerous circles of youthful naturalists from the village schools, from children's technical and agricultural experimental training-stations, display their finest achievements in plant-growing, in evolving and propagating Michourin plants, in their patronage over young cattle. They display the results of the study of the wealth of their native places. They show their success in designing and constructing new agricultural machines and appliances.

The Mechanisation of Agriculture

The Square of Mechanisation occupies the centre of the Exhibition grounds. A monumental statue of J. V. Stalin, 75 ft. high, rises in the centre of this square, which is bordered by the "Mechanisation," "Grain," "Cotton," and "Livestock Breeding" pavilions.

The pavilion "Mechanisation" is built in the form of a huge hangar, 390 ft. long. The most varied types of agricultural machinery of Soviet-make are on show here.

The rarest exhibit in this pavilion is a wooden plough.

But a brief twenty years ago, when the narrow strips of

peasant land were tilled by wooden ploughs, poor harvests and starvation were a permanent occurrence in the village.

To-day 18,800,000 peasant households, constituting 93·5 per cent. of the total, are united in collective-farms; 1000 million acres of land have been secured to the collective-farms in perpetuity. And this land is now cultivated by powerful machinery. About 500,000 tractors, over 150,000 harvester combines, scores of various types of new modern machinery assist them in harvesting the high crops now yielded by their fields. The Third Five-Year Plan provides for a still more intensive introduction of advanced technique in agriculture.

The Scientific Research Automobile and Tractor Institute and tractor engineering plants demonstrate new tractors, Diesel-engined and with gas-generating installations. The Institute of Scientific Methods of Sowing demonstrates a new kind of seeder for narrow-furrowed crops, these seeders sowing the grain so that each plant is ensured the required area for nourishment. New types of seeders have been designed not only for grain crops but also for flax, sugar-beet, and other industrial cultures. This year these seeders began to be employed on the fields of the collective and state-farms.

The combine "Stalinets 2," of a new design, can harvest—by the attachment of special implements—sunflowers, castor-seed plants, millet, and other plants, as well as grain crops. The "Northern" combine is designed specially for the northern regions, where the harvested grain has a high moisture content.

New machines for cultivating sugar-beet, potatoes, vegetables, orchards, and vineyards; a forest seeder and forest-planting machines are also displayed at the Exhibition. The employment of all this machinery mechanises many agricultural processes, thereby raising the crop yield and easing the labour of the Soviet peasant.

In equipment with agricultural machinery the U.S.S.R. occupies the first place in the world. Continued development of mechanisation and the mastering of the processes of mechanised labour opens before the Soviet land boundless possibilities of increasing the productivity of agricultural labour and of transforming such work into a form of industrial labour.

Achievements of Agricultural Science

In one of the halls of the Main Pavilion, devoted to the Constitution, eleven diagrams show the progress of agriculture of the Soviet republics. In the other halls the achievements

of Soviet scientists and the agricultural experimenters are extensively displayed.

Work on selection and seed raising of the most important agricultural crops has been particularly widely developed in the U.S.S.R. in recent years. The Soviet Union now numbers 90 scientific research institutes, 367 experimental stations, 507 experimental fields and bases. There have been established 693 agro-chemical laboratories in the machine and tractor stations, and about 30,000 village laboratories function in the collective-farms. All these institutions continuously work to increase the crop yields. Varieties of cultivated plants are studied and tested here, and new plants are evolved; methods of agro-technique, mechanisation, melioration and the opening up of lands considered unsuitable for cultivation—such as deserts, swamps, etc.—are likewise studied at these institutions, many of which demonstrate their work at the Exhibition.

The first place among the most important work of Soviet agricultural scientists displayed in the Main Pavilion is occupied by the works of I. V. Michourin and his pupils. The methods of control at will of the life of plants, and in particular of fruit and berry plants, elaborated by Michourin on the basis of Darwin's theory laid the foundation for a further development of plant science. By means of these methods Michourin evolved about 300 most valuable varieties of fruit and berry plants and, what is of greater importance, showed ways and means, and furnished the methods, for a further development of horticulture and of extending its area to the northern districts of the Union.

The work of Academician T. D. Lyenko is displayed in the Main Pavilion and in certain specialised branch pavilions, as "Grain," "Cotton," and others.

The work of Academician Tsitsin and of A. I. Derzhavin in evolving a perennial wheat, and of other perennial forms of cultivated plants, is shown in the pavilions, as well as on the open plots of the Exhibition. The Polar Experimental Station, under the supervision of Academician Eichfeld, has evolved new varieties of rye, barley, oats and other cultivated plants for the extreme north. The All-Union Institute of Plant Cultivation, headed by Academician N. I. Vavilov, displays a variety of plants from the world collection gathered by this Institute. The work of Academicians V. R. Williams, Rudnitsky, and of many other Soviet scientists, is likewise extensively displayed.

On the open plots the visitors see new high-yielding varieties

of cereals, sugar-beet, cotton, hemp, and potatoes, and learn all about the methods of work used by Stakhanovite agriculturists—Yefremov, Maltsev, Bagirova, the Siberian horticulturist Kizyurin, Doctor of Agricultural Sciences, and of many other talented selectionists and experimenters of the Soviet Union.

Over 250 kinds of various cultivated plants are displayed on the open-air exhibition plots. These include 50 varieties of spring wheat, 34 varieties of barley, 27 varieties of oats, 20 of Indian corn, and industrial, medicinal, and essential-oil plants, vegetables, etc.

An area of twelve acres, on the plot of fruit cultures round the statue of the great orchard-grower I. V. Michourin, is planted with apple-trees, pears, cherries, plums, recumbent and dwarf fruit-trees, avenues of grape-vines and of bushes. Here is displayed the work of the Michourin Institute of Fruit Growing and of many collective-farms which are following in Michourin's path. These exhibition plots complement the demonstration of the achievements of the advanced collective-farms, state farms, scientific research institutes, and scientists.

The Exhibition is thus not only a review of great victories but a remarkable practical school of agronomy and of advanced agro-technique, a school which is security for the further development of the socialist agriculture.

Livestock Breeding

The pavilions of the Exhibition also display the work of the most outstanding scientists in the sphere of stock breeding. Thus, for instance, the work of the late M. F. Ivanov demonstrates his methods of raising new breeds of highly productive cattle by interbreed crossing and by training hybrids. The practical results of his work are also displayed—the Askanya Rambouillet sheep and a new breed of pig—the Ukrainian white.

The All-Union Institute of Stock Breeding exhibits material on methods and technique of artificial insemination of animals. These methods permit a large progeny to be obtained from one sire. Thus, in 1938, 1490 calves were obtained from one bull and 15,662 lambs from one highly prolific ram. The methods of such insemination, elaborated by the scientist Milovanov, lead to a further improvement of the breeds of agricultural cattle in all districts of the Soviet Union.

The considerable achievements of the Soviet scientists, Academicians S. N. Vyshellessky and K. I. Skryabin, in

combating cattle diseases, in elaborating methods of treatment and of prophylactics, make it possible to raise stock breeding in the Soviet Union to a still higher level.

The achievements of the advanced collective and state farms in stock breeding are also displayed in the regional pavilions and on the large area of the stock breeding section. Here the visitors see model stables and byres for horses, cows, calves, sheep, and a veterinary post. In the stables are exhibited the best stock of the state and collective-farm stud farms—Russo-American race-horses, Kabardinian, English, and Don thoroughbreds; heavy draught-horses, Brabançons, Percherons, and Clydesdales. The cow byres contain splendid specimens of the Kholmogory, Siementhal, Yaroslavl, and other breeds, which yield annually 16,000–24,000 pints of milk.

Pigs and sheep of various breeds from different districts, camels from Turkmenia and Kazakhstan, reindeer from the Far North, buffaloes from Transcaucasia, yaks from the Altai, fur-bearing animals from the experimental animal nurseries represent part of the great variety of agricultural animals of the Soviet Union. All that is best, of which the Stakhanovite stock-breeders of the Soviet Union can be truly proud, is gathered here.

The U.S.S.R. Agricultural Exhibition is a joyous review of the triumphs of socialist agriculture by the entire Soviet people, a fête of the happy collective-farm life. There is not a single corner in the huge boundless Soviet Union which is not represented at the Exhibition; for the agriculture of the U.S.S.R. has not a single branch where the advanced men and women of socialist agriculture cannot apply their creative force. The emancipated labour of man will assure the further development of socialist agriculture in the Soviet Union.

N. V. TSITSIN,
Member of Academy of Sciences.

STATE AND COLLECTIVE-FARMS

THERE exist in the U.S.S.R. to-day two forms of agricultural organisation, state farms and collective-farms.

It was obvious to the communist leaders even before the Revolution that the primitive form of agriculture existing in Russia would not provide the Russian people even with bread, apart from anything else. With the exception of a few progressive estates the land was worked by methods reminiscent of Biblical times. The practice by which the small peasant owner had his land parcelled out in strips scattered over a large area made economic farming impossible. The modern technique of crop rotation, of artificial manuring, of deep ploughing, was known to few, and utilised hardly at all, with the result that 60 million peasants lived constantly below starvation-level. Had these peasants been given a sufficiency of bread, imperial Russia instead of exporting grain would have had to import it.

The first revolutionary task was the reorganisation of agriculture so that the peasant and the factory worker, who would be needed in increasing numbers, should have enough bread. No small-scale farming could possibly be adequate for the needs of the country, no hand implements would be adequate for the work. Quite apart from the socialist principle, to which private ownership of land was contrary, the use of tractors and combines demanded the abolition of farm barriers. The collectivisation of the small individually owned farms became an urgent task. There were at the same time vast tracts of virgin soil unclaimed, and to take these over was a simple matter, to turn them into successful state farms not so simple.

State Farms

The "Decree on Socialist Agrarian Laws, and on Measures for Transition to Socialist Agriculture," passed on 14th February 1919 by the Central Executive Committee, laid the foundation of state-farm organisation. They were set two major tasks: to provide the country abundantly with agricultural products of superior quality and at low prices, and, by example, to help in the reorganisation of the peasant economy.

According to the Soviet Constitution, state farms, like factories, mines, and mills, "are state property that belongs to the people." They are distinguished by their great acreage.

During the period of the civil war and economic collapse state farms were almost the only source of food supplies for the workers of many industrial enterprises. These state farms were attached by decree to the different institutions, industrial associations, factories, mills, etc. Some of them were attached to organs of Soviet power.

Even at that time the state farmers did much to help the individual poor and middle peasants in the reorganisation of their agriculture, by showing in practice the value of large-scale common farming.

Very soon the state farm, through its practical help to the village, became the centre around which the first collective-farms were formed.

By 1928 there was a considerable number of state farms, provided with tractors and other agricultural machinery.

The tractors in the tractor parks of the state farms had increased from 3477 in 1925 to 6700 in 1928. By this date production in certain crops had risen considerably. The sugar-beet farms were producing nearly a third of the sugar-beet and all sugar-beet seed in the country. In this year too was begun the organisation of other large mechanised state farms, mainly for grain.

Right up to 1931 there was a rapid growth in the area occupied by state grain farms, created chiefly from virgin lands. Size became almost a mania. The average size of a state grain farm in 1929 was 231,000 acres, while the "Gigant" state farm in 1931 reached 625,000 acres. Experience showed that there was a point beyond which size was progressively more and more uneconomical. It took the director of "Gigant" nearly six days to go from one end of his farm to the other. By the end of 1931 a process of cutting

up these monsters began. In 1934 they were still further reduced, the surplus land being handed over to collective farmers and to other kinds of state farms.

In 1930 a number of government decrees were published for the improvement of state farms: the adoption of crop rotation, the use of agro-technique, and the use of the results of scientific research.

In 1934 stock breeding was first introduced to state farms. Since that date there has been further development of state farms. The increase in the fixed capital, as shown in the table below, is one indication:

INCREASE OF FIXED CAPITAL OF STATE FARMS
(In Millions of Roubles, in 1926-1927 prices)

At end of year . . .	1928	1933	1935	1937
Capital	377.2	4475.5	5630.4	7160.5

The state farms include all branches of agriculture, as can be seen from the table below:

STATE FARMS ACCORDING TO BRANCHES OF AGRICULTURE

Class of State Farm	Number of farms	Proportion to total number
		<i>per cent.</i>
Grain (including seed-cultivating) . . .	471	11.7
Fibrous-plant.	63	1.6
Beet	180	4.5
Potato, chicory, and hops	77	1.9
Special crops (tea, tobacco)	100	2.5
Fruit and grapes	407	10.2
Stud farms	119	3.0
Horned cattle	755	18.9
Hog-breeding	650	16.3
Sheep-breeding	200	5.0
Reindeer and wild animals	39	1.0
Poultry	95	2.4
Truck farms, etc.	836	21.0
Total	3992	100

Of the 150 million acres of state-farm lands only 7.5 million acres was old farm land, all the rest was untilled land. The average size of a state grain farm is 58,500 acres; of dairy and beet farms, 71,500 acres; of sheep farms, 271,250 acres. "Gigant" is still one of the largest state farms, with an area of 121,750 acres. It is the first grain "factory" in the Soviet

Union. "Gigant" has also a large livestock station, with 3200 heads of horned cattle, 5400 sheep, 700 pigs, and 260 horses.

Its fixed capital is 12,800,000 roubles. Its gross output in 1937 was 7,000,000 roubles.

The Stalin State Farm in Krasnodar extends over 58,000 acres. It owns cornfields, orchards, vineyards, vegetable gardens, and livestock. It also owns some industrial enterprises, in the shape of a spirit distillery, a biscuit factory, a flour mill, wine cellars for 25,000 buckets of wine, and a cattle-fattening station for 5000 heads of cattle. Its gross output is 10,000,000 roubles.

"Pakhta-Aral" is the largest cotton state farm in southern Kazakhstan, with an area of 13,500 acres.

There are state sheep farms with 40, 50, and a 100 thousand sheep, there are state farms with from 800 to 1000 sows. There are in fact a great variety of state farms, which are working according to Government plans.

The technique of farming is improving yearly, and the increasing adoption of scientific crop rotation is helping to bring about increased crop yields. Grain farms in the droughty steppe regions are already harvesting more than 4 centners per acre. In beet farms the average yield is 96.8 centners per acre. Following on the Government decision to abolish narrow specialisation the farms have taken up different branches of stock breeding, as may be seen from the following table:

NUMBER OF HEAD OF CATTLE IN STATE FARMS

(In Thousands)

<i>Kinds of Cattle</i>	<i>Per 1st July 1928</i>	<i>Per 1st Jan. 1935</i>	<i>Per 1st Jan. 1938</i>
Horses	117	514.8	642.3
Including draught horses	86	..	313.3
Large horned cattle ¹	180	2707.8	2597.0
Including cows	60	..	1018.4
Sheep and goats of all ages	747	5457.7	5756.6
Pigs of all ages	59	1436.0	1828.6

¹ The herd of large horned cattle in the state farms has somewhat decreased as compared with 1935, mainly as a result of the abolition of state farms belonging to workers' supplies departments attached to different industrial enterprises and institutions.

The state farms are successfully fulfilling the plans set, of providing the country annually with 768 billion poods grain.

At the same time they are increasing the output of industrial crops and livestock.

The proportion of state-farm production to the gross output of agriculture increased during the same period as follows: from 1.6 to 9.3 per cent. in grain; from 0.8 to 6.2 per cent. in potatoes and vegetables; from 0.5 to 8.2 per cent. in milk and dairy produce; from 0.2 to 15.2 per cent. in meat and lard, and from 1.1 to 21.1 per cent. in all kinds of wool.

The state farms are from year to year increasing their delivery to the state of agricultural products, as is illustrated by the table below:

NATURAL WEIGHT OF MARKETABLE PRODUCE
(All Marketable Produce is delivered by the State Farms to the State)

Product	Delivered in 1928	Delivered in 1937
Grain	24 million poods ¹	239 million poods
Meat (weight of butcher's meat)	9,000 tons	358,000 tons
Dairy products expressed in milk weight	118,000 tons	1,669,000 tons
Wool	2,000 tons	20,000 tons
Cotton	13,000 tons	141,300 tons
Tea	none	8,300 tons
Tobacco and makhorka	340 tons	10,700 tons

¹ Grain figures are for 1929.

They have, too, succeeded in their task of aiding collectivisation among the surrounding farms. They took a direct part in organising collective-farms. They helped to organise labour, they lent tractors, combines, motor-trucks, and seeds. They helped with the repairs of agricultural machinery and implements, they trained skilled workers. But above all they helped by their own example. In the early years nearly every state grain farm had special machine and tractor brigades to help the collective-farms. There was a constant pilgrimage of individual farmers, in the first years, to the state farms to see how large-scale mechanised agriculture worked.

In the course of five years, 1933-1937, the state farms gave the collective-farms and farmers 1,386,300 heads of cattle, 2,021,900 pigs, 3,405,500 sheep and lambs. They also gave them scores of millions of pure-bred chickens and eggs, millions of fruit-trees and seedlings, and scores of millions of bushels of different sorts of clean seed.

The success of the state farms was made possible only by the industrialisation of the country, by the development of

the agricultural-machinery industry, particularly of tractors, combines, and motor-trucks. The rate of development is shown by the table below:

	<i>At end of year</i>	
	1928	1938
Number of tractors (in thousands)	6.7	84.5
Total capacity of tractors (in thousands h.p.) . .	77.6	1647.5
Number of combines (in thousands) . . . .	..	24.0
Number of motor-trucks (in thousands) . . . .	..	25.6

Mechanisation has developed rapidly. All the field labour with the exception of weeding is fully mechanised. Harvesting has been fully mechanised for the last four years. In sugar-beet and other state farms there is a total of 80 per cent. mechanised traction. Such processes as between-bed weeding, binding into bunches, digging up of beets, etc., are also mechanised.

The training of inexperienced peasants to handle machinery was accomplished with the aid of factory workers.

During the last five years the courses and schools organised in the state grain farms of the People's Commissariat of State Grain and Livestock Farms have trained 200,000 tractor-drivers, 42,000 combine operators, 16,500 assistant combine operators, and 5000 brigade leaders. Within the same period the Commissariat's institutes and technical schools have trained 7500 zootechnicians, 3500 veterinary surgeons, 2600 agronomists, and 2000 engineers.

At the present time the average annual number of people employed on state farms is 1,700,000.

The Stakhanovite methods used by the workers has resulted in an increase of production, as a result of which there has been a great improvement in the standard of living.

In the last five years the wages of workers have more than doubled. In 1932 the average yearly wage of a state grain worker was 1201 roubles. In 1937 it had risen to 2734 roubles; while the cost of living had gone down. Many of the skilled workers earned as much as 4000 and 5000 roubles. In addition to their earnings, all workers, including clerical workers, are provided with free living accommodation, which is rapidly improving. These workers may also keep their own cows, and a kitchen garden, the land for which is provided by the farm, as are the necessary implements.

In every state farm communal dining-rooms and buffets are organised. The farms have their clubs for adults; nurseries, kindergartens, and playgrounds for the very young. There are 217 schools for every 100 state farms, many have their own secondary schools, and some even technical schools and colleges.

Collective-Farms

Collective-farms differ from state farms in many respects. They are not state enterprises. A collective-farm consists of all the individual farms which the owners in a certain area have agreed to unite for the co-operative working of their land. Ninety-eight per cent. of former individually owned farms are to-day engaged in co-operative agriculture. The process by which this end was reached was not simple, and the price paid for its success, either by the state or by individuals, was sometimes a heavy one. The Russian peasant, ignorant, suspicious, and very individualistic, was incited to oppose collectivisation by all those elements which did their utmost to prevent the success of the Revolution. Legal measures were followed up by intensive education and explanation by trained political workers, which was greatly aided by the success of the collective-farms run by sincere supporters of Soviet methods. What the priest said about the immorality and sinfulness of a collective-farm might, or might not be true, but it was a fact that the collective-farmers were getting more and better wheat, more and better potatoes, and their cattle looked healthier. The Russian peasant was as shrewd as anyone, and a system which amply filled the belly could not be as wicked as the priest claimed. And so the final victory was won by example.

Although collective-farms are not state enterprises they are a socialist form of economy, and the land is state property. Article 8 of the Soviet Constitution secures the land which comprises a collective-farm to the farmers who work it, free of charge and in perpetuity. The planning for collective-farms is part of the entire state planning of agriculture. Gosplan—the State Planning Commission—from data received from the whole Union, draws up plans for the agricultural work for five years. These plans are then divided into lesser periods. Each republic receives its plan, and after adoption it is apportioned among its regions, districts, and, in the last instance, collective-farms. Every collective-farm has discussed the plans in draft-form before their final issue by Gosplan. It not only knows what is expected of

it but has agreed to the demand. Local factors, natural and economic, are taken into account in drawing up plans.

Development of Collective-Farms

The history of the collective-farm movement in the U.S.S.R. shows three types of collectivised agriculture. The first and most simple was the association for the joint tilling of the soil. These associations sprang up in the first years of the New Economic Policy as a result of the socialisation of the most important means of agricultural economy. No small individual farmer had enough land to use a tractor nor was he in a position to hire one himself. The principle underlying these associations is individualistic, and with the development of collectivisation they gradually disappeared.

The Agricultural Commune had at one time some popularity. Here everything was socialised: dwellings, livestock, all the means of production, as well as the land. Nothing was owned individually, and goods and services were apportioned according to needs. But these communes were not very widespread and after a short time were transformed into agricultural artels. The agricultural commune is the form of organisation which the collective-farms will ultimately take. Stalin said in 1934:

"The future agricultural commune will spring up when the fields and livestock sections have an abundance of grain, livestock, poultry, vegetables and all other necessary and desirable products; when these artels have mechanised laundries, bakeries, modern dining-rooms, etc., when the collective farmer realises that it is more advantageous to him to eat in the common dining-room, to buy his bread in the common bakery, to use the common laundry than to spend his time on these labours himself. The future commune will spring up on the basis of a more developed artel, on the basis of an abundance of products. And when will this be? Naturally not soon. But it will come."

The agricultural artel is what is usually called a collective-farm. The organisation includes socialised and individual property. The land, machinery used, the draught animals, the main farm buildings, the seed reserves, and the fodder required for the feeding of the common animals are socialised. The peasant derives his main income from the socialised portion, and his chief concern is to improve this. A certain amount of individual property is allowed the peasant. According to the Constitution, "Every household in a collective-farm enterprise has for its personal use a small plot of land attached

to the house. It owns individually the house and personal farm building, a certain amount of livestock and poultry and smaller agricultural implements." This concession has smoothed over many difficulties in collectivisation. Now that there is a sufficiency of agricultural produce assured for the nation as a whole the re-education of the individualistic peasant can proceed more slowly, with greater compromise than was possible in the early stages. It should be remembered that the aim of collectivised agriculture is the utmost abundance for the whole community, and has no meaning except as it helps to achieve this aim. It is therefore obvious that the changing conditions through which the country is passing will demand changes in the methods of attaining complete collectivised agriculture. Ultimately to be successful the commune must be a voluntary association.

Organisation

The collective-farm management board is elected by the peasants. The board elects its director, deputy director, and secretary, which are full or half-time jobs. All decisions have to be approved by the general meeting of the members of the farm, who also elect the various committees, such as culture committees, sanitary and hygiene committees, etc., to deal with the various aspects of life on the farm. The peasants on each farm are divided into brigades, each taking charge of a specific piece of work, such as milking, ploughing, etc. After a certain period brigades change their job, so that every member of a collective-farm becomes skilled in every branch of work. Collective-farmers receive no fixed wage, but the income, after obligations to the state have been met, is divided among the members according to the number of labour-days worked. The obligations comprise deliveries to the state, payment in kind for the hire of tractors, provision of seed reserves for sowing and of fodder for publicly owned cattle. A sum of 2 per cent. of the income must be set aside for cultural activities: crèches, a club with all amenities, the training of collective-farm personnel, etc. The general meeting has final control of the division of the remaining income. Although accounts are made up once a year, at intermediate times peasants receive potatoes, wheat, and other produce, as well as sums of money in advance.

The Labour-Day

The labour-day is the unit by which work is assessed and recorded. It equals a fixed volume of work—as the ploughing

of a certain area of land, or the milking of a certain number of cows. For example, a dairymaid is credited with 1.5 labour-days for each 100 litres of milk she obtains. For each form of labour there is a fixed unit of output, arrived at by general consent and based on experience. Such factors as the conditions of a man's draught animals, the machines at his disposal, and the condition of the soil are all taken into account in fixing the norm. Every kind of work, as for example the ploughing or sowing of a hectare of land, threshing a ton of grain, digging up a centner of sugar-beet, scutching a hectare of flax, milking a litre of milk, is evaluated in work-days in relation to the skill of the worker, the complexity or difficulty of the work, and its importance to the farm. For example, in ploughing with a double-share plough to a depth of 18 centimetres, the norm per plough is one hectare, and the piecework value of one hectare is $1\frac{1}{2}$ labour-days for the ploughman and 1 labour-day for the driver. In ploughing with a one-share plough to a depth of 16 centimetres, the norm per plough is .6 hectares and the piecework payment for a hectare to the ploughman is 2.5 labour-days. It is thus seen that workers are not penalised through lack of the best implements. If a worker over-fulfils the established norm he has a greater number of labour-days to his credit. On the other hand, if he slacks and does not fulfil his norm, he has fewer labour-days to his credit. Quality of work counts as well as quantity. If a field brigade by hard work and skill obtains from its section of the field a larger harvest than the average, or if the livestock section has succeeded in obtaining a greater yield per cow, then all the members of such a brigade receive an additional sum amounting to as much as 10 per cent. of the labour-days they have worked. Outstanding shock-brigadiers receive as much as 15 per cent., while the brigade chief receives 20 per cent. more. If on the other hand, as a result of poor work, the brigade's harvest is below the average then a deduction up to 10 per cent. of the total number of labour-days worked is made from each member of the brigade. It is obvious that the book-keeper is a very important person on a collective-farm, and every effort is made by the central and local authorities to train competent book-keepers and accountants.

The collective-farm habit is still young, and it is very important to keep continuous check on labour productivity. The public paying-out of income, the public boards on which the number of labour-days are written up before entry into the books, show up the weak spots and make it possible to

deal with them quickly. The material value of the labour-day is closely bound up with the fertility of the soil and the labour efficiency of the individual peasant. The higher the yield and the productivity of labour, the higher is the remuneration for the labour-day in kind and money. The collective-farm is able to sell the surplus, after all obligations are paid, to co-operative markets. The greater the yield of a farm the greater will be the surplus for sale and the amount for the peasants' own use. This method of payment and accountancy is found to be a great incentive to improvement of the productivity of agriculture. The achievements of different collective-farms are recorded in agricultural papers and the success of one stimulates another to greater effort. This is evident from the increase in the number of well-organised, high-yielding collective-farms. In the collective-farm the old individualistic peasant is being re-educated into a member of a socialist society.

Personal Property

The extent of the property owned individually is fixed by law, and varies with the peculiarities of different districts. The land which the peasant owns individually may not be taken from the collective land. The increased demand of the growing population is satisfied from land handed over by state farms. Occasionally farmers will be transferred to other districts where there is abundance of unused land.

In August 1939 a survey was made of land in personal use. All land in excess of the quantity allowed by paragraph 2 of The Statutes of the Agricultural Artel was to be returned to collective use by 15th November.

The law says: "The size of a garden plot for personal use may vary from .5 to 1.25 acres and in certain districts may reach 2.5 acres."

In irrigated cotton lands .2 acres is allowed for private use, in non-irrigated lands 1.25 acres, in orchard, vegetable, and sugar-beet districts up to 1.25 acres, and in all the remaining districts 2.5 acres.

By 1st September 1940 the "khutors"—scattered farmsteads in the midst of common land which hinder common cultivation—are to be moved into a compact area. Special surveyors are being appointed to check the common land and the personal land periodically.

There is an area of land set aside by the collective-farm, known as the collective-farm house-plot fund. This supplies land for new members of the kolkhoz, or in cases where a

family divides up to the additional household. The fund is increased by excess land from house plots; by land from collective farmers who have broken away from the collective life and have in practice ceased to be collective farmers; by the garden plots of collective farmers whose total labour in collective farming does not equal the minimum required number of work-days as established by law, and because of this have lost the status of collective farmer; and by the garden plots of collective farmers who have moved to districts with more land. There is a Migration-Settling Administration which supervises the migration of farmers from crowded districts to districts with an abundance of land, such as the Volga districts, Omsk and Chelyabinsk regions, Kazakhstan, the Far East, etc. These people become pioneers opening up the new rich lands.

Labour Discipline

The Government decree "On Measures for Safeguarding the Common Lands of Collective-Farms from Waste" states "that in view of the fact that collective-farms consist not only of conscientious workers producing from 200 to 600 and more work-days a year—the overwhelming majority of the collective farmers which represents the main force of the collective-farm movement—but that there is also a certain section of able-bodied collective farmers who produce no more than 20 to 30 work-days a year, and who continue to be considered as collective farmers, but in practice serve merely as ballast to the collective-farm, it is considered expedient to establish, beginning with 1939, a required minimum number of work-days per year for each able-bodied collective farmer."

In cotton districts this obligatory minimum consists of 100 work-days. In districts of the non-Black Earth Zone, in grain and livestock districts in the mountains, and likewise in the northern regions of the U.S.S.R. and in districts of the Far East, the compulsory minimum is to be 60 work-days. For all remaining districts this minimum has been established at 80 work-days.

The annual reports on labour show that the majority of workers are conscientious and are anxious to improve their output. In 1935 the average for an able-bodied worker was 180 work-days a year, in 1937 it rose to 194 work-days. In 1935 the average number of work-days per collective-farm household was 378 and in 1937 it was 438.

Stalin in one of his speeches said that Lenin's dictum "He who does not work neither shall he eat" was directed "against

those who do not work themselves, against the idlers who want to live at the expense of others. Socialism demands that all should work honestly, work not for others, but for themselves, for the community."

The compulsory minimum of work-days will ensure that a collective-farm does not carry idlers. The kolkhoz have been advised to work out a system by which members who do not work can be expelled. Expulsion carries with it loss of the house plot. The great majority of collective farmers welcomed the minimum work-day decree as long overdue.

Collective-Farm Prosperity

Prosperity among the collective farmers is rising from year to year, the total income of collective farmers between 1934 and 1937 alone has increased by more than 2.7 times and the money earnings which are distributed amongst the collective farmers according to the number of work-days, 4.5 times.

The output of agriculture during the years of the Second Five-Year Plan (1933-1937) increased from 13 to 20.1 billion roubles, and is to reach 30.5 billion roubles by 1942. The total income of the Stalin Collective Farm, Yangi-Kurgansk district, Uzbek S.S.R., was 8,200,000 roubles in 1938. This means that the total income per farmstead for the year amounted to 22,653 roubles. The gross income of the individual economy on which the collective farmer expends one-third of his labour produces only 1900 roubles. This is just an example showing the advantages of socialist labour.

In the Stalin Collective-Farm the collective farmers received 26.50 roubles each per work-day in 1938. Khazanbai Khashimov, a Stakhanovite collective farmer, received 27,723 roubles in 1937 and 32,810 roubles in 1938 for the work-days completed.

The Stalin artel of Genichesk District in the Ukraine, which has been awarded the Order of Lenin by the Government, is another case in point.

The gross income of the artel in 1938 was 3,300,000 roubles, of which 2,700,000 roubles was in money; the money income distributed among the collective farmers amounted to 1,900,000 roubles. The artel has its own club, cinema, several red corners in the fields, and for the livestock-breeding brigades, a broadcasting station, three nurseries, a cottage laboratory, a cottage maternity home, three bathhouses, a barber's shop, etc.

In Leninabad District, Tadjik S.S.R., there are twenty collective-farms with incomes of more than a million roubles,

among them the Frunze Collective-Farm, which was organised eight years ago. In 1931 it yielded an income of 371,000 roubles, whereas last year its income was nearly 3.5 million roubles. It is difficult to realise that only a few years ago on the land on which the Frunze Collective-Farm is now situated there was not a single building. Now there are forty public buildings: six brigade tearooms and one central one, whose premises also houses a broadcasting station, club, and cinema, the latter under construction; a garage, power station, and school; two cotton dryers, a bootmaker's, and other premises.

This year, upon the decision of a general meeting, twenty new dwelling-houses will be erected on the farm. The collective-farms and their people are getting wealthier from year to year.

The Village of Krasnoarmeisk

Before the Revolution most of the peasants of the village of Krasnoarmeisk (Volchansk District) could only just spell; about 800 of them were wholly illiterate. There were no people with a secondary school education.

By 1939 only five old women had remained who were illiterate. The 280 families living in the village subscribe to 318 newspapers and 89 magazines.

To-day the village has a numerous intelligentsia of its own, including teachers of the seven-year school, medical workers, people in charge of cultural public institutions, conductors of amateur art groups, etc. All the village children attend their own seven-year school. Eighty young men and girls have received a secondary education and are now directing brigades and links, or working as rank-and-file collective-farmers. Of the older farmers many have passed through agricultural courses and become specialists. There is a village library with 2200 books, attended by 50-60 people daily. Collective farmers have bought many books of their own.

The village has a House of Culture seating 350 people. There is a dramatic circle and a choral circle with fifty members. There are other circles as well: athletic, ballet, string orchestra, and a band of wind instruments.

The village has its own telephone exchange, radio station, post office, hospital, maternity home, kindergarten, nursery, pharmacy, veterinary station, etc.

The collective-farm is now building its own power station. A large park, with flower gardens and playgrounds, is being laid out next to the House of Culture; a pavilion for a reading-room and an open stage are at present under construction.

Krasnoarmeisk possesses two stores and two stands where the collective farmers can buy anything they need from bicycles and gramophones to haberdashery.

The Village Develops

Similar extensive constructive work is carried on in every village and collective-farm throughout the Soviet Union. Thousands of new cultural institutions concerned with the everyday needs of the farmers are organised, including clubs, theatres, cinemas, lecture halls, riding clubs, glider circles; the last remains of illiteracy are being abolished. United district choirs and orchestras are formed; hundreds of stadiums and sport fields are constructed. Collective-farm music and art schools are springing up everywhere; hundreds of thousands of collective-farmers are attending higher and secondary special schools and are in receipt of state grants. The collective-farm woman has full economic as well as political rights and plays her part in every sphere of rural life.

New professions which were unknown in the pre-revolutionary village have appeared in the country-side; there are tractor-drivers, combine operators, mechanics and electro-technicians, chauffeurs, presidents of collective-farms, brigade leaders, etc.

Cottage laboratories equipped with microscopes, barometers, technical scales, and chemical apparatus do great work in spreading agronomic learning. Hundreds and thousands of the best experimental farmers have come to the fore through the agency of this network of cottage laboratories.

Smetanin, an experimental collective farmer of the Novy Byt Collective-Farm, Gorky Region, read a paper on his observation and work on plant raising at a meeting of the learned Council of the Institute of Plant Physiology of the Academy of Sciences of the U.S.S.R.

MACHINE TRACTOR STATIONS

ONE of the most vital factors in the solution of the collectivisation problem was the Machine Tractor Station.

It was commonly agreed that only by mechanisation could a success be made of collectivised agriculture. But, as all farmers know, up-to-date agricultural machinery is very expensive, and a farmer either has to borrow the money or be very wealthy to invest in much heavy agricultural machinery for his own individual use. Even a collective-farm is rarely wealthy enough to buy many tractors, combine-harvesters and other machinery. Certainly in the early days of the Revolution there was hardly a collective-farm that could afford to supply itself with the necessary machinery.

It was Stalin who realised the important rôle, both agriculturally and politically, which a central organisation would have, not only in hiring out machinery, but in giving advice and training in all the questions arising out of the use of machinery, and from agricultural research and experiment.

In 1927 the Taras Shevchenko State Farm in the Ukraine organised a tractor park to help the middle and poor peasant. Stalin at once saw in this new form of State enterprise a method which could exercise control over the new collective-farm movement. The land ploughed by tractors, the scientific and technical advice received from the station, the contact with politically active people, all contributed to increasing the productivity of collective-farm land, which resulted in the increased well-being of the peasant members of a farm. To build more machine tractor stations, to extend the scope of their work, became an important task of every Five-Year Plan. In 1929 when Stalin drafted a complete programme for the socialist reconstruction of agriculture he put forward as an immediately urgent task the extensive

construction of "machine and tractor stations as a means of establishing a production bond between industry and agriculture." It was not difficult for the peasant to realise that, if increased productivity of the farm depended on machinery, he must do his share in supplying the factory worker who produced the machinery with bread. He could no longer say—let the factory worker fend for himself. From 1929 the construction of machine tractor stations has grown apace. By June 1930, 158 machine and tractor stations had been built. By the end of the first Five-Year Plan the number was 2,446, and by the end of the second Five-Year Plan the number had risen to 5,818. In 1939 their number had increased to 6,350.

It is no exaggeration to say that machine tractor stations have changed the face of the Soviet country-side. A station will cover a site of hundreds of acres. It will to-day possess agricultural machinery of all kinds, tractors, combines, motor-trucks, tractor ploughs, tractor-drawn seeders, etc. These are all hired out to the collective-farm, either for the season or for shorter periods, in any required number. The collective-farm pays in kind for their hire. The station trains tractor-drivers and other agricultural mechanics, who go with the machines and are paid by the collective-farm at the prevailing rate for a labour-day. Drivers and mechanics from collective-farms may also receive their training at the station. Big repair workshops are an essential part of the enterprise.

Nearly every station to-day has an agronomics department, where research is carried on and where agronomists are trained. These may be paid for a period or permanently employed by the collective-farms. Many agronomical problems are solved for the collective-farms in this department.

A very important activity is that carried on by the political department of a station. It is this department which has been successful in persuading the peasant to adopt all possible methods to improve the quality of produce, and, by better organisation and greater efficiency, to cut down the cost of agricultural production. The department carries on incessant political education among the peasants. One result has been a considerable raising of the level of culture in rural areas. There has been a great increase in crèches, kindergartens, schools, and technical colleges. More attention is being paid to literature, art, and music. A great improvement in health and hygiene is evident. But above all, the Russian peasant is becoming mechanically minded. With the help of the machine tractor stations both the productivity of labour and

the leisure on the farm increase. The peasant is becoming richer and finding more time in which to enjoy his riches.

A comparison with some pre-revolutionary conditions gives some idea of the change that has been wrought in the countryside by machine tractor stations. In 1910 the peasant farms of Tsarist Russia counted 7.8 million wooden ploughs and 17.7 million wooden barrows and primitive scythes; 34 per cent. of the peasant households possessed no farming implements whatever, and 30 per cent. possessed no horses. There was six roubles' worth of machinery and implements per sown hectare. The collective-farms (in 1929 prices) have an average of sixty-five roubles' worth per hectare. In 1938 the stations served 109 million hectares of land, or 93.3 per cent. of land under farms. The combines harvested more than 39 million hectares of grain crops and sunflower seeds.

The basic agricultural processes are now to a large extent mechanised. In 1937, 71 per cent. of spring ploughing, 54.3 per cent. of spring grain sowing, 43.8 per cent. of grain harvesting was done by machinery.

The training of personnel has kept pace with the development of machinery. On 1st June 1938 there were over 650,000 tractor-drivers and leaders of tractor brigades, 170,000 combine operators and mechanics, 55,000 operators of threshers and flax-scutchers. Thousands of these have taken up the challenge to increased productivity and have become Stakhanovites. These have greatly aided the increase of efficiency. For example, in 1932 the output per tractor, taking 15 h.p. as a unit, was 367 hectares, by 1937 this had increased to 470 hectares. The output per unit of 15-foot combines increased from 75.6 hectares in 1932 to 317 hectares in 1937.

The machine tractor stations are financed by the State. During the two Five-Year Plans 8 billion roubles was expended on them. The capital investment approved for the Third Five-Year Plan is 5200 million roubles. In 1936 the collective-farm peasantry paid to the machine tractor stations for the use of machinery to complete the entire cycle of agricultural labour 9.4 per cent. of their harvests. The machine tractor station also has its own cultural and social life. There are the various types of schools for the education of the children. There is the club for all cultural activity, music, dancing, drama, academic studies, and so on. First-class professional companies from Moscow, Leningrad, and other central towns visit the stations to give plays and concerts, and to advise regarding amateur activities. Com-

panies from the theatres for children give performances for the children. Scientists, aviators, authors, poets, and others visit the station to talk about their work, so that a machine tractor station, however remote, does not feel itself shut off from the rest of the community.

Perhaps the best of all results is the speedy abolition of the gulf between town and country.

The Relations between the Kolkhoz and the M.T.S.

The Kolkhoz and the M.T.S. enter into contracts covering their economic-legal relations. The entire organisation and production activity of a machine tractor station serving a collective-farm is arranged on the basis of such a contract. The underlying principle of the agreement is the utilisation to the fullest possible extent of all the machinery of a station, as well as the utilisation of its agricultural technique. The agreement defines clearly the obligations of the M.T.S. to the Kolkhoz. It enumerates not only the kind and volume of work but also the quality; as, for example, the depth of the ploughing, and the time within which it is to be accomplished; when sowing is to be done, and how long it is to take, etc.

Being materially interested in the reaping of a good harvest, the M.T.S. in its turn makes precise and definite provisions in the agreement in regard to the obligations undertaken by the collective-farms in order to raise the crop yield. The agreement covers defined crop rotation. It likewise states what agronomical measures are to be taken and to what acreage the collective-farm is to apply them. The agreement also determines the extent of the basic undertakings to be effected by the draught-power of the collective-farm itself.

Not less than twice a year the director of the machine tractor station and the chairman of the collective-farm render account to a general meeting of the collective-farmers on the fulfilment of the agreement drawn up between the M.T.S. and the Kolkhoz.

Through the production council of the machine tractor stations close contact is maintained between the M.T.S. and the collective-farms. The council is comprised of the director of the station, his assistant, the chief agronomist, chief mechanic, chief accountant, chairman of the respective collective-farms served by the machine tractor stations, and Stakhanovites of the collective-farm fields.

The production council meets whenever necessary, but it is obligatory on it to meet prior to the beginning of the basic

agricultural work, and at any time when demanded by at least two collective-farms.

The collective-farms in accepting and entering the work performed by the machine tractor station take account both of the volume and the quality.

The agreement provides for acceptance as well as the settling of accounts for work done in the collective-farms. Work of poor quality is rejected and the machine tractor station is under obligation to do such work over again, and in accordance with the standards set.

Accounts for the work accepted from the machine tractor station are settled in kind, according to the rates approved by the Government.

Rates are established for each form of work—for example, the rate for threshing of grain is established and is paid for out of the total amount of threshed grain.

The collective-farms effect the payment in kind to the M.T.S. simultaneously with the fulfilment of their obligatory deliveries of produce to the State.

The work of the machine tractor stations for ploughing, winter sowing, and fallow ploughing is done on a credit basis, no interest being charged to the collective-farms; payment in kind is made out of the harvest of the following year.

The Soviet Government uses all possible measures for raising the fertility of the collective-farm fields. As an aid to this it has a system of quarterly financing of the M.T.S. This is done in accordance with their fulfilment of the annual production and financial plan; this plan provides for the volume of work in collective-farms, agricultural work in kind, quality, and periods of fulfilment, as well as the size of the basic crop yields, etc.

The entire system of financing is arranged so as to encourage good work, to promote the achievements of a self-supporting basis in the M.T.S.

The more successfully the machine tractor station fulfils its production and financial plan the better it executes its obligations to the collective-farms; the greater its success in raising the harvest yield the greater is the material support it receives from the State. For successful fulfilment of production plans and tasks set by the Government in raising the crop yield in the collective-farms, the management of the M.T.S. receive State premiums. In its turn, the management of the machine tractor stations awards premiums to workers and other employees who have shown Stakhanovite proficiency in obtaining good yields.

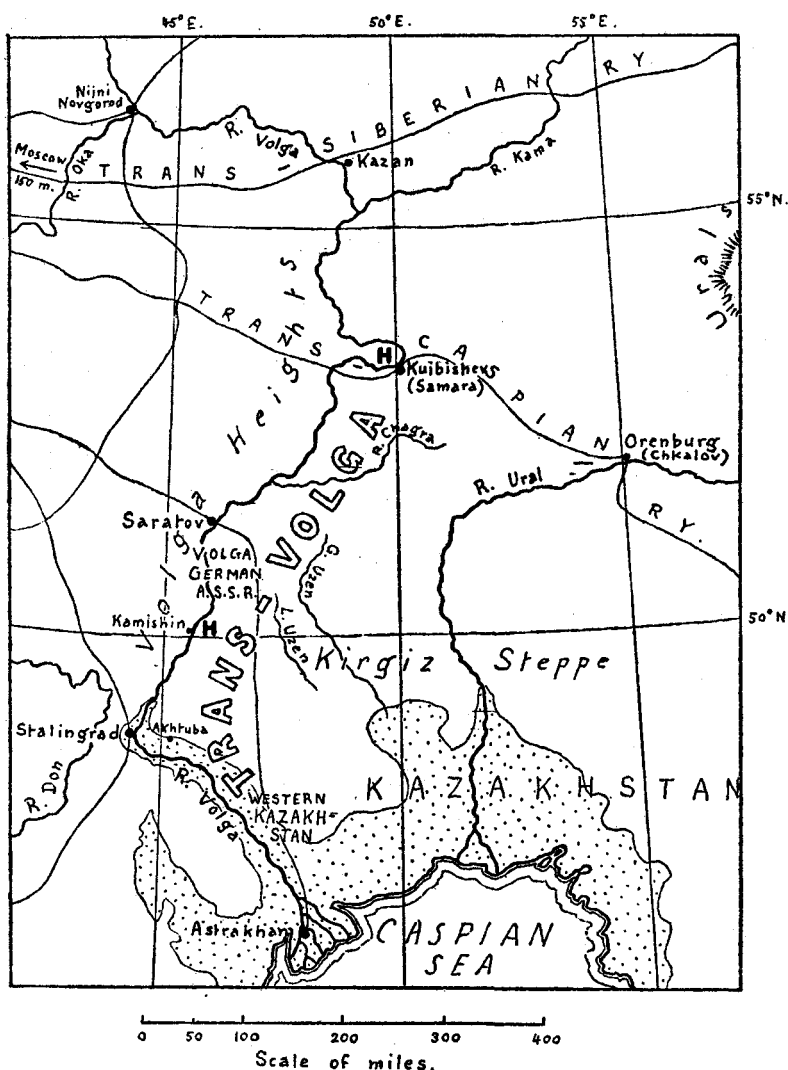
COMBATING DROUGHT

IRRIGATION OF THE TRANS-VOLGA REGIONS

BEFORE 1918 drought was endemic in Russia. The Russians named two kinds of famine resulting from drought according to the area which was affected. If it was a small area about the size of England it was called "golodovka"—a little famine. When it affected an area about the size of Europe it was dignified by the name "golod"—famine. "Golodovka," or little famines, occurred every year in one district or another, while a "golod," or famine, occurred about once in four years.

The priests had taught the peasants that droughts were visitations from God and there was nothing to be done about it. It was, of course, a pity that thousands should die of the famine consequent on drought, but the Lord willed it so. It was in 1921, when intervention was hardly over, that one of the worst famines consequent on drought raged in the Soviet Union. It was then that the resolution to combat drought sank deep into the consciousness of those who were directing the life of the country. Since that terrible year achievement has been considerable. Much of what for centuries had been desert has been reclaimed for agriculture.

Here are the irrigation plans for the Trans-Volga region. Two tremendous hydro-power stations, with a total capacity of 3,400,000 kilowatts, are being constructed in the district of Kuibyshev. These electric stations will supply the power necessary for the irrigation of the arid lands lying beyond the Volga, assuring regular, high-yielding crops. The dream of many generations is becoming a reality. The plans for the irrigation of the Trans-Volga districts which are part of the third Five-Year Plan will, when concluded, abolish once for all the terrible consequences of drought. At long last all the districts beyond the Volga will be able to look forward



THE TRANS-VOLGA REGION

to real and continuous progress and development in agriculture.

The data of the Bezenchuk Experimental Station, collected over a period of forty years, will illustrate the agricultural conditions resulting from drought in these areas. These figures relate to the volume and distribution of atmospheric

precipitation during the most important months of plant development:

TABLE 1

Years when the observations were made	Number of years analogous in atmospheric precipitations in the course of forty years	Volume of precipitation in mm. April-August	Volume of precipitation in mm. by months				
			Apr.	May	June	Jul.	Aug.
Droughty year, 1921	8	47	2	0	5	34	6
Medium drought, 1917	6	122	14	7	15	27	59
Normal, 1923	15	172	10	32	55	37	38
Medium humid, 1926	7	276	26	64	74	53	59
Humid, 1915	4	330	71	44	87	43	85
Average year . . . . .	.....	187	24	37	42	41	43

As evidenced from the table, 8 years, or 20 per cent., were years of drought, 6 years, or 15 per cent., were medium droughty, 15 years, or 37.5 per cent., were normal, 7 years, or 17.5 per cent., of medium humidity, and 4 years, or 10 per cent., were humid.

The irregular distribution and the insufficiency of atmospheric precipitation exercise their influence upon the crop yield of the vegetation and are the reason for sharp fluctuations in the gross yields and of the instability of agricultural production as a whole. The influence of drought upon the stability of crop yield can be judged by the following table on the grain and fodder balance of the Saratov and Stalingrad regions during the drought year of 1924 and the normal year of 1925 (in thousands of tons):

TABLE 2

Grain crops harvested	1924	1925
	494.2	1971.1
Left for seed	290.0	315.3
Consumption by the agricultural population	894.9	1023.9
Consumption by the cattle	115.8	115.4
Total of above-mentioned three items	1300.7	1457.7
Deficit	806.5	.....
Surplus . . . . .	.....	513.5

It is obvious therefore that to obtain a high and uniform yield, in the arid districts beyond the Volga, the condition

of irrigation, untimely and insufficient moisture must be changed. Irrigation counteracts the harmful consequences of drought and assures a high and stable harvest even in years of drought. This has been confirmed by the results of many years' work in experimental institutions and the recent practical experience, on a large scale, of the advanced collective-farms and of individual Stakhanovite farmers. In the Trans-Volga districts these people have obtained high yields with the help of irrigation even in the drought years. The table below, relating to the crops of spring wheat harvested by collective-farms of the Kuibyshev region under the exceptionally unfavourable conditions of the year 1936, will show what irrigation can do:

TABLE 3

Collective-farm	Irrigated area under spring wheat in hectares	Crop in metric centners ¹ per ha		
		Irrigated		Non- irrigated
		Highest	Average	
"Plamya Revolutsii" . . .	5.8	35.6	27.0	3.1
"Volna"	8.0	44.0	26.6	2.0
"Novaya Zhisn"	9.0	32.2	30.0	1.4
"Vahkitov"	47.0	34.0	18.0	2.0
"Krasny Foot"	11.0	42.5	15.0	1.5

The stability of crop yields on irrigated lands is also confirmed by the data collected in the course of many years by the Valui Experimental Station, which operates in one of the very dry districts of the Volga German Autonomous Soviet Socialist Republic. According to the data of this station, the crop yield of spring wheat from 1924 to 1933 inclusive was characterised by the following indices in the most successful experiments on irrigated lands:

TABLE 4

Year	Yield of spring wheat in centners per hectare	
	Irrigated	Non-irrigated
1924	19.3	0
1925	20.4	6.2
1926	18.0	6.3
1927	13.9	2.2
1928	26.9	6.8
1929	23.6	7.2
1930	29.0	0.7
1931	31.0	3.0
1932	31.7	7.1
1933	35.9	8.0
Average	25.0	4.7

The extensive practical work of the Stakhanovites of the Trans-Volga areas serves as a particularly striking example of the stability of crop yield under irrigation. In the Frunze Collective-Farm, Saratov region, high yields of all cultures obtained were under ordinary conditions. On an area of 16.7 hectares a wheat crop of 35 to 37 centners was gathered, and on sections additionally fertilised, as much as 41 centners per hectare.

The collective-farm "Krasny Partisan," Kharabali District of the Stalingrad region, obtained a yield of spring wheat amounting to 70 centners per hectare in the exceptionally droughty year of 1938.

The plan for extensive irrigation drawn up on Government instructions, by the Lower Volga Planning Organisation of the People's Commissariat of Agriculture of the U.S.S.R., embraces a vast area covering a territory of about 38 million acres, stretching from the left bank of the Volga.

The total area of lands to be watered after the entire irrigation plan for these regions has been accomplished will form about 10.8 million acres (according to the draft plans of the Lower Volga Planning Organisation), allocated in the following individual regions on the left bank of the Volga.

TABLE 5

Region	Entire territory in hectares	Number of hectares irrigated		
		By waters from the Volga river	By waters from the local rivers	Total area of irrigated lands
Kuibyshev	2,047,533	563,408	269,395	832,803
Chkalov	310,900	..	101,915	101,915
Saratov	3,283,188	1,373,526	20,680	1,394,216
Volga German, S.R. .	1,893,932	820,504	..	820,504
Stalingrad	4,942,645	1,003,000	..	1,003,000
Wester Kazakhstan .	2,579,258	177,100	..	177,100
Total	15,057,456	3,937,538	391,990	4,329,538

As can be seen from the above table, the bulk of the lands beyond the Volga, which forms over 90 per cent. of all the watered lands of the extensive irrigation plan, will be irrigated by the Volga water.

To accomplish this, the construction of a series of powerful pumping stations is contemplated along the Volga river. These stations will operate on the electric power generated

by the Kuibyshev and the Kamyshin hydro-power stations, and will pump the Volga waters through a network of canals to the fields designated for irrigation. The irrigation of the areas situated on higher levels will be done from three large reservoirs—the Chagrin, Bolshoi Uzen, and Maly Uzen—which will be filled with Volga water also by the pumping stations.

The lesser part of the irrigated lands, forming about 10 per cent. of the entire watered area embraced by the irrigation plan, will be watered by means of local streams, which will be directed into special reservoirs constructed on the Trans-Volga riverine systems (Kinel, Samarka, Bolshoi Irghiz).

This extensive irrigation plan is to be completed in several sections in the course of fifteen to twenty years. The first, which is scheduled to be put into operation towards the year 1947–1948, will irrigate about 2.5 million acres. The areas embraced by the first section of the plan are those situated on the Volga terraces, for the following reasons:

1. The Volga terraces are more densely populated than the districts beyond the Volga. Owing to this, the opening up of these newly irrigated lands can be achieved with the minimum movement of workers from more populous districts.
2. The lands on the Volga terraces are of a smoother relief, are more susceptible to improvement, and therefore can be more easily opened up for agriculture.
3. The position of the irrigated lands near the Volga obviates the necessity of raising the water to higher levels and reduces the working costs.

The irrigation needs of an agricultural district are fixed on a basis of the ascertained water units and the hydrological condition of the soil of that particular region. The plan is based on measurements taken in a medium dry year, taking into consideration the amount of water individual crops will require, the reserve of moisture in the soil, and the volume of atmosphere precipitation during the vegetative period. Thus the irrigation norms for the basic crops sown on lands beyond the Volga are fixed as follows:

Winter wheat	.	.	.	2400–2500	cubic metres per hectare
Spring wheat	.	.	.	2400–3200	„ „
Lucerne	.	.	.	2800–4200	„ „
Sunflower	.	.	.	2000–2400	„ „
Sugar-beet	.	.	.	3100–	„ „
Indian corn	.	.	.	2700–3200	„ „

With these irrigation norms (taking into account the losses of water in the canals under conditions of a medium-dry year) the general consumption of water from the Volga for the irrigation of the lands of the first section will amount to about 6213 million c.m., and 25,628 million c.m. for the 4.3 million hectares (10.8 million acres) of land of the entire irrigation plan. As a result, all the crops planted beyond the Volga will receive, even in droughty years, a sufficient amount of water, and will therefore guarantee high and stable crops.

Throughout the entire Trans-Volga area to be irrigated, at present wheat accounts for an average of 43 per cent. of all the crops. A comparison with the Ukraine for the year 1937 will show how adversely the instability of crop yields affects this region.

	<i>Gross yield in thousands of centners</i>		<i>Gross yield in percentage</i>	
	<i>Total grain cultures including wheat</i>	<i>Wheat only</i>	<i>Total grain cultures including wheat</i>	<i>Wheat only</i>
U.S.S.R.	1,202,903	468,638	100	100
Trans-Volga regions . . .	31,821	17,011.7	2.65	3.63
Ukrainian S.S.R.. . . .	227,699	100,756	18.93	21.50

The yield of marketable wheat following on vegetation is expected to be as follows:

	<i>Gross yield of wheat thousands of centners (without local consumption)</i>	<i>Marketable wheat (without local consumption)</i>	
		<i>in thousands of centners</i>	<i>in percentages to gross yield</i>
First section of irrigation plan	14,451.0	11,747	81.3
The first and following sections	53,562.5	44,161.35	82.5

The planting of alfalfa is to be a compulsory part of wheat cultivation in this area. Alfalfa, planted together with perennial grasses, facilitates the rapid reconstitution and improvement of the soil texture and increases its fertility. It is thus a valuable predecessor to spring wheat. Incidentally the cultivation of alfalfa diminishes the risk of re-salination

of the soil, besides representing a superior variety of fodder for all cattle, thanks to its nutritive and digestive nature. The introduction of lucerne in field crop rotation creates a large and stable fodder base which guarantees the development of cattle breeding in the Trans-Volga area and the increase of cattle productivity.

The irrigation of the regions beyond the Volga creates vast opportunities for the development of beet cultivation and allows the organisation of a large new district of beet-sugar production which will be able to supply the needs of the local population for sugar.

Sugar-beet is to be introduced in the crop rotation of the irrigated lands of the Kuibyshev and Saratov regions and of the Volga German A.S.S.R.

Irrigation further creates tremendous potentialities for the cultivation of valuable varieties of fibrous plants, particularly kenaf, southern hemp, and cotton.

The cultivation of kenaf is contemplated for all districts with the exception of those in the north. Particularly extensive development of the cultivation of kenaf is to be undertaken in the Volga-Akhtuba flood area, where one and a quarter million acres are to be irrigated.

Cotton plantations are planned for the district of the Akhtuba flood area and for the southern part of the Volga ridge, the district of Vladimírka-Kharabali. Cotton has now been cultivated under ordinary production conditions in this district for several years. The cotton crop can be judged from the following figures of the Astrakhan Experimental Station:

TABLE 9

<i>Years</i>	<i>The crop yield of raw cotton, centners per hectare</i>
1925	From 5.5 to 18.1
1926	Up to 17.1
1927	15.9 to 27.4
1928	0.7 to 4.7
1929	8.3 to 13.7

The Trans-Volga regions to-day represents one of the main sunflower-cultivation areas, this being raised in all districts here. With the help of irrigation sunflowers can yield high and stable crops of 25 to 30 centners per hectare.

The cultivation of sunflower is, in the main, carried on in the district of the Kuibyshev and Saratov regions, which

contain numerous oil-extracting plants, and the number of which is to increase considerably in accordance with the plan.

According to the figures of the All-Union Institute of Plant Cultivation on the distribution of crops, the northern boundary of Indian corn passes through Zhitomir, Kiev, Kursk, and Kuibyshev. For these reasons it is planned to concentrate the cultivation of Indian corn, in the main, in the irrigated areas of the Saratov and Stalingrad regions and in the Volga German A.S.S.R., since these districts can ensure the required warmth necessary for its full ripening as well as longer periods without frost.

Under conditions of irrigation the cultivation of rice is also possible in this area. Experimental cultivation undertaken in the Volga-Akhtuba valley by the Valui and Bezenchuk experimental stations give full confirmation of this.

In the experiments of the Astrakhan Experimental Station in 1921, rice yielded a crop of from 16.5 to 25 centners per hectare, depending on the variety, and in 1923 the crop amounted to even 30-35 centners per hectare.

The experimental work of the Bezenchuk Station, conducted during the last three years, fully established the possibility of rice cultivation also in the northern districts of the Trans-Volga area. The rice planted by the experimental station ripened, and yielded from 10-25 centners per hectare, depending on the variety.

The cultivation of rice is contemplated mainly in the district of the Volga-Akhtuba flood area.

With irrigation the cultivation of vegetables—melons, cucumbers, etc.—and of fruits and berries will be extensively developed, further stimulated by the rapid growth of the prosperity of the agricultural and urban population and by the possibility of organising these branches of agriculture on all collective-farms under conditions of irrigation.

The cultivation of vegetables, melons, cucumbers, etc., and of fruits and berries, is to be specially developed in the suburban zones of the large cities, and of industrial centres situated in the Trans-Volga (Kuibyshev, Saratov, Stalingrad), where there is a rapid increase of the urban population.

Irrigation of the Trans-Volga will create favourable conditions for the development of productive cattle-breeding in all districts, and will allow, in a brief space of time, the accomplishment of the task set by the Government for the rapid development of cattle-breeding.

As already mentioned, the introduction of grasses and rich fodder in the crop rotation on the irrigated lands will increase

the concentration and the stability of the fodder base. Irrigation will likewise assist in improving the quality of the fodder, permitting the cultivation of fodder roots, winter fodder, and grasses for green fodder on the scale required in the Trans-Volga. The scale of potential development of cattle-breeding can be judged from the following comparative figures (in thousands of head):

TABLE 10

	<i>First section of irrigation</i>			<i>All sections</i>		
	<i>Number of head on 1st January 1937</i>	<i>Planned number of head</i>	<i>Increase</i>	<i>Number of head on 1st January 1937</i>	<i>Planned number of head</i>	<i>Increase</i>
Cattle .	178.8	928.4	5-fold	783.6	3,926.9	5-fold
Pigs .	84.8	923.2	11-fold	259.4	3,936.9	15-fold
Sheep .	347.4	2,200.4	6-fold	1,262	910,439.5	8-fold

The irrigation plan leads to the expectation of radical changes in the agriculture of the regions situated beyond the Volga. The present-day grim and semi-desert aspect of the lands beyond the Volga will be transformed into a flourishing one. A multiplicity of agricultural produce will be raised in the regions beyond the Volga: large volumes of marketable wheat, valuable industrial raw material, vegetables, and meat and dairy products.

AGRICULTURAL SCIENTIFIC WORKERS

NOT the least important factor in modern agriculture is the scientific worker. The greater the rate at which agriculture has to be developed the greater his importance. Never in history has agriculture advanced at such a rate and on such a scale as in the twenty-two years of the Soviet Union's existence. When the backwardness of Tsarist agriculture and the backwardness of Tsarist education are recalled, the acuteness of the problem of training scientific personnel for agriculture will be realised.

In Tsarist Russia there were in all 200 scientific workers in the sphere of agriculture. Tsarist Russia in 1913 possessed 122 agricultural scientific institutions, including 44 experimental stations and 78 experimental fields. The appropriation for agriculture in the State budget was 2.35 million roubles.

From the very first days serious attention was devoted by Soviet authorities to the training of scientific personnel for agriculture. That these efforts have been attended by great success is proved by the quantity and the quality of scientific workers in the field to-day. The rise of the number of scientific workers was rapid. By 1931 there were 2000, by 1934, 3295, and to-day there are about 8500 scientific workers in agriculture.

The increase in the number of scientific institutes has kept pace with the increase in personnel. By 1931 the U.S.S.R. had 57 scientific research institutes, 9 branch institutes, 226 zonal stations, and 21 bases; by 1934 the figures were 113 scientific research institutes, with 32 branches, 932 zonal stations, and 746 bases.

The annual allocations for agricultural scientific research in the U.S.S.R. exceed 350 million roubles.

The All-Union Institute for Plant Cultivation to-day has

a general staff exceeding 1000, including about 880 scientific and scientific-technical workers. The staff of this institute includes 17 Doctors of Agricultural Science. The budget of the institute for 1939 amounted to 8 million roubles. The All-Union Institute of Fertilisers, Agro-Technique, and Soil Science, numbers a staff of 600, including 476 scientific and scientific-technical workers, of whom 11 are Doctors of Agricultural Science. The budget of this institute totals 4,500,000 roubles. The Smolensk Regional Station of Field Crops has a staff of 119 scientists and technicians; the Azerbaidjhan Experimental Station of Field Crops has a staff of 85.

Besides the thirteen leading institutions which are under the Lenin All-Union Academy of Agricultural Sciences—the All-Union Institute of Plant Cultivation, the Institute of Selection and Genetics, the All-Union Institute of Fertilisers, the Institute of Agro-Technique and Soil Science, the Institute of Animal Husbandry, the Institute of Mechanisation and Electrification of Agriculture, the Institute of Hydro-Technique and Melioration, and others—a large network of specialised institutes has been extensively developed subordinate to the local government land organs.

Thus, four Institutes of Grain Crops and three Institutes of Cotton Cultivation conduct their work in different agricultural zones of the country. There are, further, an Institute of Flax Growing, two Institutes of Beet Cultivation, six Institutes of Fruit and Berry Raising, and so on.

The number of young scientific workers who have completed post-graduate courses totals nearly 2500.

There are three sources from which the scientific contingents for agriculture are replenished. The first is from students graduating from universities and institutes, who take up scientific work immediately on completion of their course. The second source is from those who have taken up a post-graduate course in some science relating to agriculture, and the third is from the practical workers, such as Stakharov or Papanin. People like the latter have proved their abilities and shown their talents in their practical work. They then receive theoretical training and return to agriculture as scientific workers.

Not only is all the training free, but those studying receive salaries up to 500—or even more—roubles a month, plus a great many services.

Most of the training is given in post-graduate courses in agricultural colleges and scientific research institutes. Some

random figures show the rate of increase of post-graduate workers in agricultural research institutes. In one year, from 1929 to 1930, the number increased from 86 to 696 workers.

In 1933 applications for post-graduate courses were received from 700 graduates. In this year the agricultural scientific research institutes were reorganised. They were set up where conditions for work were most favourable, two essential conditions being scientific equipment and teaching personnel. Between 1935 and 1938, 663 post-graduate workers finished courses in agricultural scientific research institutes.

These scientific institutes work under the ægis of the Lenin All-Union Academy of Agricultural Sciences, but the same methods are used for those institutes not connected with the Academy.

Very significant is the composition of the body of agriculture scientific workers. Where before the revolution a worker or peasant scientist was a phenomenon, to-day he forms an ever-higher percentage of the whole body of the scientific workers. The staff of the Lenin All-Union Academy of Agricultural Sciences is a dramatic illustration of this change. Out of the 1531 scientific workers of the scientific research institutes under the Academy, 12.6 per cent. are former workers and 41.4 are former peasants.

The growth of Soviet agriculture is sufficient testimony that these former workers and peasants have acquitted themselves satisfactorily.

Throwing wide open the doors of science to all the people has been of immeasurable gain to the country.

While not all of these workers may be doing first-rate work, yet a source of talent has undoubtedly been discovered, particularly among the young scientific workers.

The Lenin All-Union Academy of Agricultural Sciences recently held several conferences of young scientific workers on the following questions:—the mechanisation and electrification of agriculture, veterinary science, livestock breeding, and plant protection. The table on p. 75 gives an idea of the work done.

The agricultural tasks which the Third Five-Year Plan has to fulfil are so great that more and more demands are being made for trained scientific personnel. The Soviet Government is devoting very special attention to this branch of education and they have every hope of satisfying their needs.

<i>Subject discussed</i>	<i>Number of papers presented</i>	<i>Number of papers read</i>	<i>Prizes awarded Grades</i>			
			I	II	III	IV
Mechanisation and electrification of agriculture . . .	52	43	2	7	14	11
Veterinary science . . .	120	94	3	16	22	16
Livestock breeding . . .	204	80	6	13	25	36
Plant protection . . .	131	118	3	12	17	62

MY ROAD TO SCIENCE

GIVEN the ability and the desire, it is easy to become a scientist in the Soviet Union. Soviet life itself compels one to become a scientist, to a certain degree. For this reason, the road which led me to become a scientist is really an ordinary one, in the U.S.S.R. accessible to any citizen.

Finishing the Kiev Institute in 1925, I began work at the Kirov Selection Station as a junior specialist on the selection of leguminous and fodder plants.

The autumn and winter in Kirovabad Valley is considerably milder than in the Ukraine, where I was born and grew up. The idea came to me of growing fodder legumes in the late fall and the early spring; and late in the autumn of 1925 I sowed a selection of legumes.

In the beginning of spring an interesting situation arose: several sorts which I had considered would be quite a bit earlier than others proved much later, and vice versa. In pondering over this situation, my first conclusion was that not all the principles in old text-books were immutable truths, and my second conclusion was that it would be necessary to explain in greater detail what regulated the length of the vegetation period of agricultural plants.

Experiments were begun on periods of sowing.

Every ten days, over a period of two years, I sowed a selection of various agricultural crops, and finally was convinced that the early ripening or the late ripening of a species could not be determined without considering the conditions of the soil.

After many experiments, I ascertained the factors determining the division of plants into winter and spring species, and I realised why winter grain and likewise many other winter

plants do not bear fruit if planted in the spring under ordinary field conditions. I presented the results of my observations and experiments to the All-Union Genetics Congress held in Leningrad in 1929. My report passed practically unnoticed.

But I am not one to give up in face of difficulties or to stand in awe of stale scientific traditions. I consulted with my father, a collective farmer, and suggested that he plant a half-hectare of winter wheat (Ukrainka) in the spring. In the summer the wheat came to a head beautifully and ripened, despite all prophecies to the contrary.

The unusual behaviour of the spring-sown winter wheat on my father's section attracted the attention of the Soviet public and of rural organisations. The People's Commissariat of Agriculture of the Ukrainian S.S.R. proposed my transfer to the Odessa Selection and Genetics Institute to work on problems of vernalisation.

A new period of my life began in 1930-1931. I understood that the strength of a Soviet scientist consisted in his maintaining a close connection with production, with people in practical work, and, understanding this, I established contacts with thousands of collective-farm experimental workers and, through them, with collective-farm cottage laboratories.

One group at the research institute first studied experimental work on half a hectare of ground, then on several hectares, scores of hectares and, finally, on hundreds and thousands of hectares of vernalised sowings in various collective-farms. The Institute received reports of collective-farm experiments conducted in various districts of the Soviet Union. Analysing these, we discovered unknown laws in the behaviour of plants. New experiments were arranged. As a result of all this work, a definite theory of the development of plants took form, and it was on this basis that new agricultural methods were worked out for Soviet agriculture (a fight against the degeneration of the potato in the south, the pruning of the cotton plant, etc.).

Summarising the broad experimental material, we arrived at the reconstruction of the nature of plants. We pledged ourselves to create, through crossing in the course of three years, a new species of spring wheat. After exactly two and a half years, in 1935, we obtained three new types. In 1937 our species (1163) took first place in point of fertility in almost all areas of regional testing of new types. It was with the same speed that a new species of cotton plant was created for the Ukraine.

Developing these new species, we came to the conclusion

that it was necessary to support and improve self-pollinating plants and inter-specific crossing, and in 1937 no less than 15,000 collective farms were conducting experiments in this latter field.

We united all the vast group of experimental collective farmers around all our scientific work. Our success was due to working along the lines of Darwinism and collaborating with the many thousands of practical workers in agriculture.

Many of our scientific conclusions and measures provoked mild sarcasm from the representatives of old agricultural science. But their opposition could not and cannot hinder our activities, our creative striving towards a goal, because we are supported by the truth of a theory which is hourly being tested and established in practice.

Our work has full material and moral support from the Soviet Government, which encourages daring scientific experiments and the efforts of people who have overcome routine and stagnation in science.

T. D. LYSENKO,
President of the Lenin All-Union
Agricultural Academy.

ROUND THE U.S.S.R.

ANTHROPOLOGY

Skull of Neanderthal Man found in Caves of Teshik-Tash

IN the Moscow Institute of Anthropology a special commission under the presidency of Professor M. A. Gremyatsky is studying the skull and parts of a skeleton of an eight-year-old child of Neanderthal type. This skeleton, together with stone weapons belonging to a man of the Early Stone Age (about 50,000 years old), was found last summer, by an archæological expedition led by Academician Okladnikov, in the caves of Teshik-Tash, not far from the town of Baisoon, in Southern Uzbekistan. The skull was in pieces, but all the important parts were intact, and it has now been restored completely by the archæologist Gerasimov. Professor Gerasimov considers that this first unequivocal evidence of the Early Stone Age to be found in Soviet Central Asia forms a link in the geographic dispersal of peoples of the Ice Age.

This is the first Neanderthal type skull to be found within Soviet territory. This skull differs strongly in structure from that of modern man. In spite of the young age of the skeleton, the skull has very well-developed superciliary ridges, characteristic of the skulls of the higher man-like apes. The lower jaw is massive and is not prognathous. Together with the skeleton were found a great many stone weapons characteristic of the culture of the middle period of the Early Stone Age. These weapons resemble those found in connection with Neanderthal man in Europe and North Africa. Up to the present the whole of Asia, with the exception of Palestine and China, has been a huge blank spot on the map of the dispersal of Neanderthal man. The finding of this skeleton of Neanderthal man and weapons of Early Stone Age in the Teshik-Tash caves gives the clearest answer to the question, Who lived in Asia in the Ice Age? Now it is quite obvious that Central Asia, like Europe and Africa before the appearance of modern man, was populated by Neanderthal man.

On the other side, transitional forms between Neanderthal to modern man, found alike in the U.S.S.R. and other countries, suggest a line of evolution from the ape-like Neanderthaler to *Homo sapiens*.

NOTE ON THE ABOVE BY PROFESSOR W. E. LE GROS CLARK, F.R.S.
—*Anatomy Department, University of Oxford*

Until more is known of the anatomical detail of this fossil child, and of its geological horizon, it is hardly possible to draw general conclusions regarding the light which it throws on human evolution. It does serve, however, to emphasize that Neanderthal man was very widespread over the Old World, and not merely a local "by-product" which appeared relatively later in Western Europe. The evidence is now accumulating that from the early and fairly generalized Neanderthal types (probably of pre-Mousterian date) modern man took his origin, and the fossil remains found during recent years near Peking suggest that this transitional phase occurred in Asia. This new discovery of a Neanderthal child in the Soviet Union adds further corroboration to this hypothesis.

The Mansi People

Last year the Anthropological Museum and Institute of the Moscow University began its co-operation in the work undertaken by the Academy of Sciences of the U.S.S.R. in the study of the ancient history of peoples of the Soviet Union. During the summer of 1939 the Institute and the Museum equipped three expeditions, one of which went to study the anthropological type, the customs and habits of that section of the Mansi people (the Voguls) who dwell in Ivdel district, in the northern-most part of the Sverdlovsk region.

The expedition had to travel north of Perm by steamer up the Kama to Cherdyna, and from there to Krasnovishersk. Then they travelled on the Vishera river in boats hollowed out of ash wood, thus covering about 125 miles using punting poles as oars, they could make headway against the rapid current of the Vishera. In the upper reaches of the Vishera the expedition crossed the Ural Range from Europe into Asia. Here they transferred to reindeer teams, continuing their journey over the swamps and rocks. It was hereabouts that one of the groups of the expedition encountered the

incarnation of Fenimore Cooper's Red Indian. First impressions proved correct in the main. Savva Bakhtiarov, as this representative of the Mansi people was named, differs very little from the American Indian in appearance.

At the end of last century an hypothesis was put forward that North America was settled by Indians migrating from the northern part of the Asiatic continent. Eminent contemporary anthropologists, including those of the Soviet Union, have obtained considerable proof which indirectly supports this hypothesis. It was not until now, however, that scientists have succeeded in meeting with a Mansi who, anthropologically, fully corresponds to that of the American Indian. And he was no exception. It is the predominating type among the Ivdel Mansi.

It is interesting to note that Mansi menfolk wear European apparel, though they have not yet rejected their ancient garments of reindeer skins. In the summer they are clad in reindeer-skin slippers reminiscent of the Indian moccasins. The Mansi engage in reindeer breeding. In the summer, in order to protect the herds from swarms of midges, they drive them far into the mountains, right up to the Ural Range.

The expedition was struck by the anthropological peculiarities of some of the Mansi, which resemble those of the ancient inhabitants of the steppe of the Black Sea region and the southern part of Siberia. The faces of the Mansi are oval, their eyes a light green, and their hair wavy. Further proof that the Mansi are related to the dwellers of the steppe is found in the fact that they have legends of horsemen heroes. Apparently nomads of the steppe, related to the ancient Ugrians, once became a component of the Mansi peoples.

The results of the expedition's work are of great importance in the study of the early ancient history of the peoples of Northern Asia, as well as in the study of the problem of how and when man first settled in the American continent.

This expedition was conducted by N. N. Cheboksarov, with the collaboration of scientists Trofimov and L. S. Mstislavsky, and the artist E. Y. Karpovich. They have collected abundant material on the structure of Mansi dwellings, and on the peculiar reindeer harnesses and exquisite embroideries worked by the Mansis of to-day. Many interesting photographs and portraits have been made of the Mansi. A special exhibition is being prepared of the material, and will soon open in the Anthropological Museum of the Moscow State University.

ARCHÆOLOGY

Remains of Ancient Art in Garni and Geguard (Armenia)

THE only relic of Græco-Roman art in the Soviet Union, a pagan temple of King Trdat, is found in Garni, a picturesque Armenian village.

This charming little temple, perched on a sheer precipice overhanging a deep gorge, built by Roman architects during the first century A.D., has been preserved in excellent condition. The small hall of the temple is surrounded by twenty-four pillars. The well-preserved beautiful stone-carving of cornices, frontals, friezes, and capitals is ornamented with carvings of grapes, pomegranates, and acanthus leaves.

A drive from Garni to Geguard brings the visitor to a beautiful monastery, a perfect masterpiece of Armenian architecture. The ancient name of this monastery was "Airivank," which means "the monastery built in a cave." The remains consist of several caves, in which springs, held sacred in ancient times, have been preserved. The churches, caves, and chapels of Geguard have been known since the fourth century, while the monastery itself is recorded as built in the twelfth century. Traces of ancient art have been preserved in the carvings of the interior pillars, in the ornaments and reliefs of the doors. Members of the ancient clan of the Prosyans lie buried in the vaulted hall. Their tribal arms are beautifully hewn in the solid rock. The altar façade has a remarkable bas-relief picturing a mountain goat with a branch in its mouth.

An expedition arranged by the Academy of Sciences' Institute of History of Material Culture, jointly with the Hermitage, has sent word of some interesting archaeological discoveries at Janbas-Kala, Uzbekistan. They have excavated an ancient fire temple in which they found statuettes of horses, camels, and monkeys, a plate depicting a rider, Scythian arrows, and other objects. In Kyz-Kala archaeologists have investigated the remains of a monumental structure of a fortress which, in the twelfth century, was one of the strongest in Central Asia.

Excavation of an Ancient Settlement of Lake Dwellers

An expedition of the State Historical Museum which, under the direction of Professor Bryusov, conducted excava-

tions in Charozero district, Vologda region, recently returned to Moscow. This expedition unearthed a large grave mound on Yeloma river, dating back about 3500 years. Here were found eleven tombs, of much interest.

At the confluence of the Pereshna and Madlona rivers the expedition continued excavations (begun last year) of a settlement of lake-dwellers dating back twenty-eight or twenty-nine centuries. The settlement lay considerably below the river-level and the water had to be pumped out. The remains of two houses were discovered deep beneath the bottom. Long rows of piles on which these houses rested were also unearthed, as well as a fragment of a crumbled wall. These excavations are the first to give an idea of the construction of the ancient abodes of lake-dwellers.

Excavations of the barrows of the Slavonic tribe of Vyatichis, dating back from the twelfth to fourteenth centuries, have been begun near the village of Derevlevo, outside of Moscow. Many interesting discoveries were made on the very first day of excavations, among them an exquisitely designed silver "grivna" medallion, worn at the time as a necklace ornament by women.

A characteristic ornament used by this tribe was a seven-bladed chaplet, a large number of which have already been unearthed. Silver circlets, rings, and coiled bracelets with yellow and green stones, as well as pottery, have also been discovered.

In one of the barrows the expedition unearthed a large treasure of silver coins dating from Peter the First. It is presumed that this treasure was hidden in this burial mound of the Vyatichis during the Seven Years War (1756-1763). Such discoveries of the more recent buried treasures in ancient Slavonic mounds are historical curiosities very seldom met with. The extent of this treasure and its excellent state of preservation allows a thorough study of the technique and quality of minting of that period.

The South Kazakhstan Museum of Regional Studies in Chimkent has acquired a number of interesting exhibits. Halbuba Yuvdasheva, a seventy-year-old Uzbek woman, presented a coat of mail, weighing over nineteen pounds, which she found in her yard. Saulshin, Borisov, and Petenkov, young students of regional study, unearthed some water-pipes in the ruins of an ancient fortress. Baisbayev, an inspector of the Regional Board of Education, presented six coins which he found near the ruins of the ancient city of Otrar, where Tamerlane died. The scientific workers of

the museum declare that these coins date from the time of Genghis-Khan.

PALÆONTOLOGY

THE skeleton of a gigantic elephant was found in 1912 near the Hajibey Estuary by an old member of the service staff of the Novorossiisk University in Odessa.

During the Civil War this unique specimen, together with other valuable collections of the Palæontological Museum of the University, was removed from Odessa by the troops of occupation. The Red Army, however, captured the train and everything was returned to the museum.

The work of restoration and mounting of the skeleton, begun last year, was recently completed. The elephant, which is to be exhibited in the hall of the Palæontological Museum, is of an astonishing size. It measures over 16 feet from jaw to pelvis and is 13 feet high. Its tusks are more than 6½ feet long. Clothed in flesh and skin, the animal would weigh at least eight tons.

According to available data, the elephant lived in the steppe lands of the Black Sea region. It was found in an upright position in the sandy strata on the bank of the estuary. The sands in which the bones of the elephant were preserved date back to the period of river formation. This gives grounds for the assumption that many thousands of years ago a large river, with banks suitable for watering, used to flow where the Hajibey Estuary now is, and that animals used to come here to drink. The shifting sands on the banks, however, could give support only to the smaller beasts, whereas larger animals—elephants, for example—sank in them. Apparently this is how this particular elephant met its end.

The specimen is very closely related to the ancient southern elephant. It is the most complete skeleton in the Soviet Union, and second only to the one in Paris, where an almost complete skeleton of the southern elephant, found in France at the end of the last century, is on exhibition in the Museum of Natural History.

Judging from archæological finds in various countries, the southern elephant is coeval with the Heidelberg man, who, according to archæologists, lived about 300,000 years ago.

SCIENCE

Two Years in the Arctic Ice-Floes

DRIFT OF THE ICE-BREAKER 'SEDOV'

THE 24th of October 1939 marked the second anniversary of the *Sedov's* drift in the Polar regions.

The ice-breaker *Sedov* set out from Archangel on 16th June 1937. In addition to its crew, the vessel carried a group of scientists who were to conduct hydrographic investigations of the Laptev and Kara seas. And it was in that direction that the *Sedov* headed her course.

The ice-breaker completed its original task and incidentally helped to convoy freight vessels. Then the Arctic winter set in. By the middle of October the *Sedov* and the ice-breakers *Malygin* and *Sadko*, which accompanied it, were no longer able to crush their way through the heavy ice. On 24th October a wireless message was received in Moscow stating that the ice-breakers had begun to drift. This was not far from the Novosibirsk Islands, 75° 27' North lat.

It was in this way that the drift of the *Sedov* began. During the two years that have elapsed, the *Sedov* crew has accomplished a considerable amount of valuable scientific work, and much further north than the point reached by Nansen on the *Fram*.

The *Sedov* drifted northward, with the *Malygin* and the *Sadko*, in the grip of the ice. On 28th August, last year, the ice-breaker *Yermak* drove a path through to the drifting vessels to release them from Arctic captivity. The rudder of the *Sedov* was damaged. The *Yermak* convoyed the *Malygin* and the *Sadko* out of the ice, and the *Sedov* had perforce to remain behind and begin to prepare for a second winter at the 83rd parallel north lat.

In parting from the *Sedov*, the other ice-breakers furnished them with a supply of food and an emergency radio station. They also replaced part of the crew.

Drifting with the ice toward the north, the ice-breaker, in August 1939, reached 86° 38' North lat., after which the drift changed its course toward the west.

The Central Administration of the Northern Sea Route in Moscow receives regularly wireless messages signed by Badigin, captain of the wintering crew. The messages state that "Everything on board is in order" and that "scientific work continues all the time."

The crew of the ice-breaker has long since repaired the rudder, and, while continuing their daily work, patiently wait for the moment when they will succeed in getting free of the ice into clear water.

The men aboard the *Sedov* have made thorough preparations for the new Arctic winter which has already set in. The temperature in the region of the drift is already 27 degrees below zero, Centigrade. On the second anniversary of its drift, the *Sedov* found itself at 84° 57' North lat. and 28° 55' East long., approximately on the meridian of the eastern part of Spitsbergen.

MEDICINE

Treatment of Leprosy by Naphtalin Oil

V. KUZNETSOV, the director of an experimental leprous clinic (Krasnodar), has evolved a new efficacious method for the treatment of leprosy by naphtalin.

The naphtalin oil is extracted at the health resort Naphtalan, in Azerbaidjan. It belongs to heavy oils and in appearance resembles ordinary oil, but differs from it in its composition: the naphtalin oil contains no kerosene, benzine, or paraffin. It was known before that it had a curative effect on diseases of rheumatic and podagric nature, diseases of the peripheral nervous system, gynæcological ailments, and diseases of blood-vessels and skin.

Primary cases of leprosy have been arrested by means of naphtalin oil. Thus, a girl of thirteen who suffered from nervous leprosy, a boy of eight suffering from tubercular leprosy, and a woman of thirty suffering from a combined form of leprosy were completely cured. In these cases the naphtalin treatment resulted in the restoration of sensitivity of the upper and lower extremities, and disappearance of infiltrations on the patients' faces.

Considerable amelioration has also been noted in cases of chronic leprosy. In some cases this treatment restored the sensitivity of upper and lower extremities and resulted in disappearance of facial infiltrations and healing of ulcers, as it did in the case of a man of forty-two who suffered from leprosy for thirty years, and a woman of fifty-four years who suffered from tubercular leprosy for about ten years.

On the basis of his studies, Professor Kuznetsov established that naphtalin oil gives rapid and stable effect in the cure of leprosy.

NOTE ON ABOVE BY MAJOR-GENERAL SIR CUTHBERT
A. SPRAWSON, I.C.S. (RETD.), F.R.C.P.

The treatment of leprosy by naphthalin oil appears to be an entirely new idea, and is another piece of research work on the treatment of this disease that has come to us from the Soviet Union. In the last number of the *International Journal of Leprosy* Dr A. A. Vishnevsky, working on the lines initiated by Professor Speransky, describes the use of Novocaine Blockade in the treatment of leprosy. That work was done in the Krutje Richi Leper Settlement, near Leningrad. The present research on the use of naphthalin oil comes from Krasnodar. What is the exact chemical formula of this naphthalin is not described in the brief extract. There is a heavy oil, a substance called naphthalene, consisting of crystalline plates formed in the manufacture of coal-gas and with the formula $C_{10}H_8$, which has been previously used as an intestinal antiseptic, but the oil now used is evidently something quite different. The brief account given of the action of the oil on pronounced cases of leprosy is most encouraging; but the history of the treatment of this disease has known so many disappointments that we cannot do more at present than await with interest the publication of the details of its action over a series of cases in the scientific Press.

EDUCATION

175 Years of the Academy of Arts

IN November of 1939 the Academy of Arts, situated in Leningrad, concluded 175 years of existence. Within its walls such Russian masters as Bryulov, Kiprensky, Shvchenko, Repin, and Cournov learned their craft and worked.

To-day the Academy of Arts is the most important educational and scientific institution. The Academy has four faculties: painting, sculpture, architecture, and theoretical study of the arts.

Higher Education

More than 100,000 young specialists finished at higher education institutions in 1939. In 1914 in the whole of Russia there were 91 higher education institutions with 112,000 students. To-day the Union has 708 higher education

institutions with over 600,000 students, of which 40 per cent. are women. Before the revolution, in the whole of Asiatic Russia there were 4 higher education institutions. To-day the Soviet Republics of Central Asia have 64 higher education institutions with over 30,000 students. The Transcaucasian Republics have 41 institutions with 40,000 students. Entirely new universities are to be found in Alma-Ata, Baku, Vladivostock, Voronezh, Gorki, Dnepropetrovsk, Erivan, Irkutsk, Minsk, Perm, Rostov-on-the-Don, Samarkand, Sverdlovsk, Tashkent, and Tiflis. Higher education institutions train specialists necessary for the national economy and culture of the country. In the institutes of heavy engineering alone there are to-day as many students as there were in all institutes before the revolution.

A vast number of new specialists were required for the large mechanised agriculture. In 1913 in the whole of the Kursk province there were 70 agronomists; to-day there are 2279. In the same province in 1913 there were 274 doctors and 3000 teachers; to-day there are 941 doctors and 24,000 teachers. Full maintenance grants were received by 91 per cent. of the students, involving an expenditure of 800 million roubles.

Uniform Spelling

Until lately there were about ten orthographical handbooks, compiled by various authorities, which differed in their spelling of many uncertain words. Punctuation rules were just as confusing. The new words which have arisen in the course of time, and especially as a result of the needs of industrial terminology, also demand definite orthographical rules.

In view of this, the Council of People's Commissars of the U.S.S.R. decided to set up a special commission to work out unified orthographical and punctuation rules for the Russian language. This commission, presided over by P. A. Tyurkin, People's Commissar for Education, has already begun its work.

The draft of the rules adopted by the commission will be submitted for consideration and discussion to scientists, teachers, and Press representatives, as well as to the general public.

The commission will also examine the orthographical dictionary compiled by the Marr Institute of Language and Thought.

The work is to be finished by 1st January 1940.

Books in the U.S.S.R.

During the twenty-one years of Soviet rule more than 7 milliard copies of books in 111 languages have been issued. That is more than were issued in 354 years in pre-revolution Russia. The U.S.S.R. holds first place in the world in the publication of books. During the second Five-Year Plan were issued 192 million copies of books dealing with Marxism and Leninism, tens of millions of copies of the New Constitution, and 12 million copies of the *Short History of the Bolshevik Party*.

In the last years the literature of ancient Greece and Rome, of the Middle Ages, and of modern times has been published. This includes large editions of the works of Plato, Virgil, Cervantes, Shakespeare, Voltaire, Byron, Mark Twain, Romain Rolland, and others.

In 1938 Western literature was published to the number of 13 million copies and all quickly sold. Byron, Heine, Goethe, Dickens, Anatole France, Cervantes and others have been issued in Russian, Ukrainian, Belorussian, Armenian, Georgian, Yiddish, Tatar, and other languages. Byron and Goethe have been issued in six languages, Anatole France in seven, Dickens in eight, Balzac in nine, Heine, Cervantes, and Schiller in ten, Zola in eleven, Maupassant and Romain Rolland in thirteen, and Shakespeare in fourteen, while Victor Hugo was issued in 34 languages, with 3,378,000 copies. Shakespeare had one million copies and Dickens two million.

Papers and Journals

On 5th May Press Day was celebrated. It was dedicated to the publication of the first number of *Pravda*.

In 1913 Russia published 859 papers, with a total edition of 2,729,000. To-day there are 8550 papers published, with a total edition of 37,520,000.

In 1917 Central Asia had no paper in a national language; in 1938 there were 413 national papers. There were 1762 journals published.

30,000 Rare Books

The department of rare books of the Public Historical Library has a collection of 30,000 volumes. Besides costly luxurious editions there are many exceedingly rare, sometimes unique, copies. There is, for example, the only existing copy of a book of *Proverbs* by Inigo Lopez de Mendoza, a

Spanish writer, published in Seville in 1500. Then there is a book printed in 1723 in St Petersburg, entitled *Book of Measured Degree Charts of the Ost See or Varangian Sea*, which is unknown even to bibliography. The collection includes files of the first Russian newspaper, *Vedomosti Moskovskie*, of 1703, founded in that year, and a complete set of Radishchev's works, including his famous *Journey from St Petersburg to Moscow* (published in 1790) and his even rarer *Letter to a Friend Residing in Tobolsk* (1790).

Here also is a large collection of books which were confiscated after publication, among them printed documents on the case of Alexei Petrovich (son of Peter I), published in 1718 and later seized from their owners by Peter II, Alexei's son, and destroyed. The Department also contains books destroyed by the authors themselves after unfavourable comment by critics, among them earlier works of Gogol and Nekrasov. There is an interesting copy of F. A. Gilyarov's *Fifteen Years of Treason—April 4th, 1866—March 1st, 1881*, which was banned by the censors even before it was published. The collection contains old books and magazines with whole pages and even entire articles deleted by the censor, authors' pre-censor copies containing the complete original text, among these Vantishch-Kamensky's *History of Malaya Rossia* (Ukraine), published in 1822.

Certain volumes here have an interesting history. Among these is a massive secular Bible in heavy binding, which according to all indications belonged to Charles XII of Sweden, and was taken together with other trophies by Russian troops in the battle of Poltava.

Various interesting inscribed volumes include an 1811 edition of I. Krylov's fables with the author's own corrections of the text for a new publication, galley proofs of Dal's dictionary with corrections by Grech and Dal himself, books bearing autographs of Gogol, Herzen, and Goncharov, and, finally, volumes with inscriptions of household serfs, soldiers, and peasants.

There is a complete collection of Russian publications of the eighteenth century.

Gorky in 1936-37

The Gorky Museum has compiled a bibliography of both Gorky's works and writings about him which appeared in the Russian language in 1936-37.

In those two years about 5000 books, articles, stories,

poems, and news items connected with Gorky were published in the Russian language. Of these 577 are the work of Maxim Gorky himself.

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*Plans of the Department of Literature and Languages
of the Academy of Sciences*

The Gorky Institute of World Literature has an ambitious plan. During the next year the Institute is to prepare and hand in to print two volumes of material from the A. M. Gorky Archives. One will contain the unpublished and unfinished works of the great writer and the other will contain his letters. Work on the compilation of a chronicle of Gorky's life and work is to be continued.

In 1940 members of the Institute will be writing monographs on the work of Radishchev and Derzhavin and on the following subjects: "The Life and Work of L. Tolstoy," "Pushkin—the Founder of Russian Literature," "The Supremacy of Pushkin," and others. The following works are to be prepared for press: a text-book on the history of Soviet literature for universities, and institutes of literature and pedagogy, the first volume of a *Dictionary of Mythology*, a collection of *Songs of the Eighteenth Century*, and a book on the problems of realism in Russian poetry. Important work on the preparation of a course in the history of modern Western literature is also to be undertaken, to be ready in 1941.

Members of the Armenian branch of the Academy of Sciences of the U.S.S.R. will begin work on the publication of the *History of Armenian Literature* (in four volumes) in 1940. A special collection of articles is being prepared in connection with the 1500th anniversary, next year, of the death of Mesrop Mashtots, the creator of the Armenian alphabet. A book entitled *Twenty Years of Armenian Literature* will also be published.

Lermontov—Discovery of Unpublished Documents

In the Central State Archives of Domestic and Political, Culture and Life in Leningrad, a number of documents have been discovered relating to Lermontov and his time.

They show the *chevaux-de-frise* which censors used at the time when the so-called "popular editions" of Lermontov's work were being prepared for publication. The conclusion of a statement by the learned committee of the Ministry of Public Instruction, dated 24th June 1897, says "permission

for a complete collection of Lermontov's works for the elementary and even secondary schools is wholly impossible . . . he has doubts in God, honour, love, good, etc., in a word about everything that comprises the positive and good side of life."

Elsewhere the document states: "Lermontov is to be considered not as a Russian, but rather as a world, stateless person. According to the censors his "masquerade" is obviously harmful because "it represents the destruction of family happiness."

BOOK REVIEWS

THE SOCIALIST SIXTH OF THE WORLD

By Dr. Hewlett Johnson

Victor Gollancz • 7s. 6d. net

THE Dean of Canterbury is that rare and refreshing being who can distinguish the essential from the trivial, the permanent from the transient, the fundamental from the superficial. With supreme understanding he selects that which is constructive, that which is positive, that which shows the purposive development of the country. I, for one, am grateful to him for ignoring the trivialities with which the casual tourist or trade union leader regales us, the tales of missing plugs, and late buses.

He has attempted very successfully to give a picture of the stage the Soviet Union has reached on its road to Communism, and if it is apt to read too much like perfection it is not because Dr Johnson does not recognise and admit the imperfections. But for him, as for many of us, the achievements have justified our belief in humanity, while the failures show that surrounded by enmity and hostility humanity will for a long time retain many of the objectionable features developed by the struggle for existence.

The book is divided into four "books." The first includes an autobiographical sketch and Dr Johnson's views on capitalism and Christianity in an attempt to explain himself. The story of the U.S.S.R. begins with Book II, with a valuable chapter "Tsarist Background," a necessary reminder of conditions before the revolution.

A great many visitors to the U.S.S.R. appear to be entirely ignorant of Tsarist Russia and their impressions are therefore of little value. For the U.S.S.R. is the one country that cannot be regarded statically. Only when related to its

past, and viewed dynamically as a country that is continuously changing from one phase into another, can a just appreciation of what is happening there be obtained. It is because means and methods, and the application of principles, change so rapidly that it is essential to seize hold of the fundamentals of Soviet life. Otherwise understanding is impossible.

The ordinary reader will for the first time obtain a clear idea of Socialist Planning in the U.S.S.R. If the simple and vivid language needed any help it is supplied by the excellent diagram on page 115.

Dr Johnson is at his best when describing the use the Soviet Union makes of science, and the possibilities it affords for research. He has captured the thrill and the adventure of being a Soviet scientist, the excitement of achieving that which the world held to be impossible.

In industry and agriculture alike Soviet Scientists set out, with the resources of the nation behind them, to make nature serve man, so they change the geography of the land, they grow wheat in the Arctic, they find that underground gasification of coal is not merely a health proposition, it is an economic proposition.

Dr Johnson has understood the unity of Soviet life, and in writing of the development of industry he notes that the U.S.S.R. has only one map of the country, that geology coincides with industry, so that factories are built near the sources of materials with no waste of human effort.

In writing of the Five-Year Plans Dr Johnson rightly claims that time has answered the criticism of "haste and waste" that was levelled against the U.S.S.R. in the early days. Had she not hurried so much with her industrial development she would not have been immune from attacks for so long.

There are informative chapters on the position of women, on the different republics, and on the Stalin Constitution. All emphasise the equality of races, creeds, and sexes, particularly the economic equality. There are chapters which deal with communications and machines, with coal, and gold, and oil. Two things are brought out in each chapter: the purposive planning of all the activity, and its service for the community.

It is not surprising that in a survey of one-sixth of the world some information should be out-of-date, as is the case with the chapter on Education. Polytechnisation ceased to be practised in 1937, when the school workshops were done

away with. The understanding of the place of science in the productive development of the country is given in the science lesson in the laboratory, while manual work is carried on in free time in the innumerable school and other clubs. In the technicums and institutes the course includes not merely specialist training but the economics and politics of the subject, whether engineering or transport or aviation. Those who leave a technical college at the age of seventeen must work in the industry for which they have trained for three years, after which they may, if they wish, enter Higher Education. Those who enter technical institutes at eighteen years come at the completion of the secondary school and train as specialists or research workers.

The chapter on Religion is in some respects the least satisfactory. It is hardly true to say that "Marx, Lenin, and Stalin were anti-religious just because they believed that religion had consistently aligned itself with organised injustice." They were anti-religious because materialistic philosophy, which Dr Johnson rightly points out has nothing to do with capitalist materialism, is intellectually opposed to any belief in supernatural phenomena. The insistence that a man who is moral and ethical must be a Christian is a little illogical. Why cannot he equally be a Confucian or a Mohammedan or a Jew, or indeed an atheist?

One or two misprints tend to obscure the meaning occasionally, and it must be a printers' error on page 247 which states that the U.S.S.R. has nearly 200 races; nationalities or ethnological groups was surely meant. Similarly Moscow cannot have "groups of 200 nationalities." Dr Johnson gives a timely reminder, at the end, of the many defects still existing. Regarded as an attempt to inform the world of permanent and vital developments under a system which has long ceased to be an experiment, the book is of very great value.—B. K.

HANDBOOK ON RUSSIAN (Volume II)

By Michael V. Trofimov, M.A. *Sherratt and Hughes* 8s. 6d. net

A LANGUAGE that is spoken by 170 million people must in itself be of importance. When this language is that of a country one-sixth of the world, engaged in the task of creating a new kind of society, its importance is increased immeasurably. When the language is as beautiful as Russian is, boasting a literature of acknowledged greatness, there is

added reason for its study. Any book which encourages this study is to be welcomed. This is a book for advanced students and teachers.

Professor Trofimov says "the object of this volume is to serve as a reference-book giving a record and a general description of the modern Russian morphological and syntactical system." As such it should be of great value to both teachers and students.

In our next number we hope to have a detailed review of the book. Meanwhile we welcome it as a contribution to the study of Modern Russian.

GLOSSARY OF TERMS

Centner = 220 lbs.

Hectare = 2.5 acres.

Pood = 36 lbs.

Kolkhoz = Collective-Farm.

Sovkhoz = State-Farm.

U.S.S.R. = Union of Socialist Soviet Republics consists of 11
Union republics.

R.S.F.S.R. = Russian Socialist Federative Soviet Republic, the
largest of the Union republics.

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GLIMPSES OF WORLD HISTORY

From Earliest Times to the Present Day

by JAWAHARLAL NEHRU

With 50 Maps by J. F. Horrabin

1016 pages.

10s. 6d. net.

Pandit Jawaharlal Nehru, author of *Autobiography* and several other books, is an outstanding figure in Indian public life, and an ex-President of Congress. For many years he has been participating in the struggle for Indian freedom and has served several long sentences in prison for his political activities. In spite of the hardships he has suffered he has never lost his faith in the ultimate liberation of the Indian people, and even prison did not destroy his detachment and clarity of vision.

Glimpses of World History is in fact the product of his imprisonment—written originally between 1930 and 1933 in the form of letters to his young daughter, whose education he had little opportunity of supervising. Since then the whole work has been revised and brought up to date, but the letter-form has been retained which gives a simplicity and directness to the work, though, considering the circumstances in which it was first written, the treatment is never superficial. For *Glimpses of World History* is no mere narrative of events, valuable as the work is in this respect, but also a reflection of the author's personality. His outstanding intellect and sensitive mind make it unique in character.

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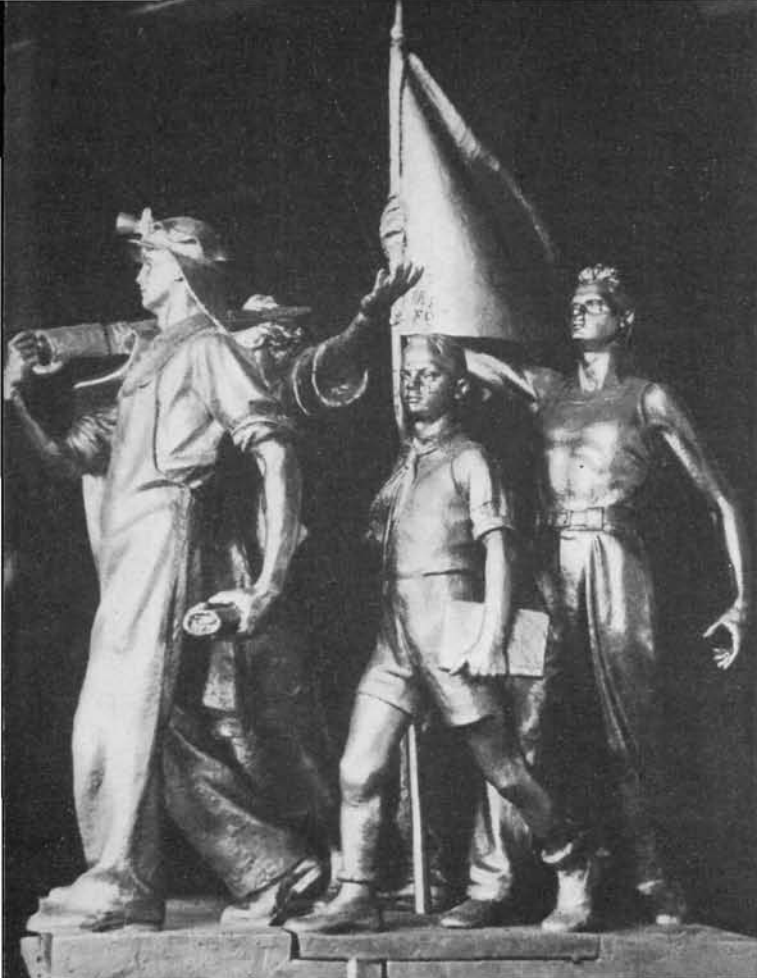
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Voting at the 1937 Elections in Tashkent

SOVIET ELECTIONS

In 1937, for the first time in Russian history, elections were held under conditions of secret ballot, all citizens over eighteen, irrespective of sex, race or creed, having the right to vote. The occasion was made one of great rejoicing. Polling-booths were decorated with flowers and beautiful wall-carpets, and electors dressed in their best for the occasion. Orchestras and bands played in the squares and crowds danced in the streets. Over 99 per cent. of the population went to the polls.



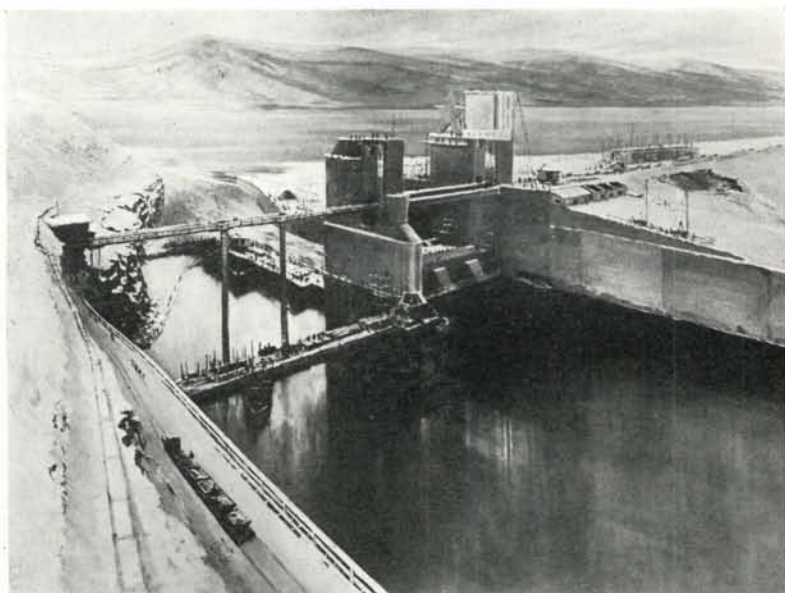
A group of Sculpture entitled
“Heroic Spirit of Socialist Construction”

—AT THE NEW YORK WORLD’S FAIR

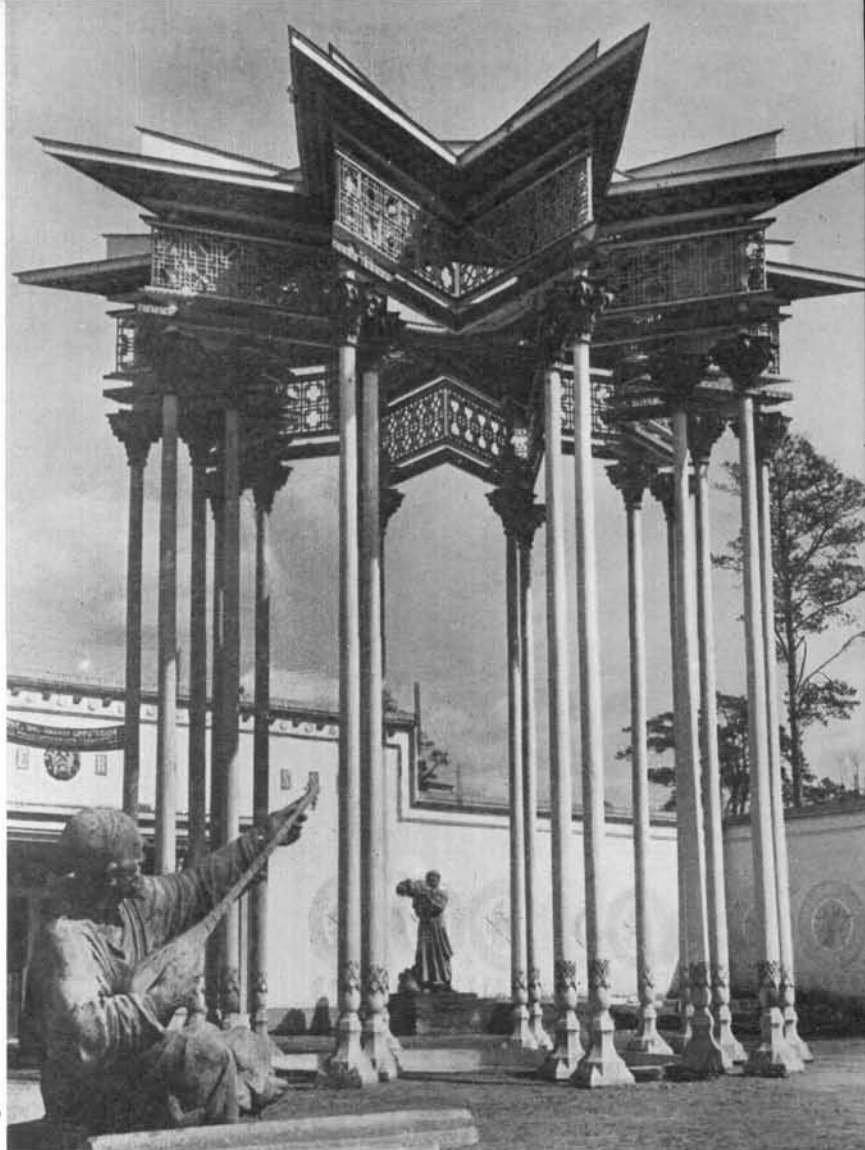
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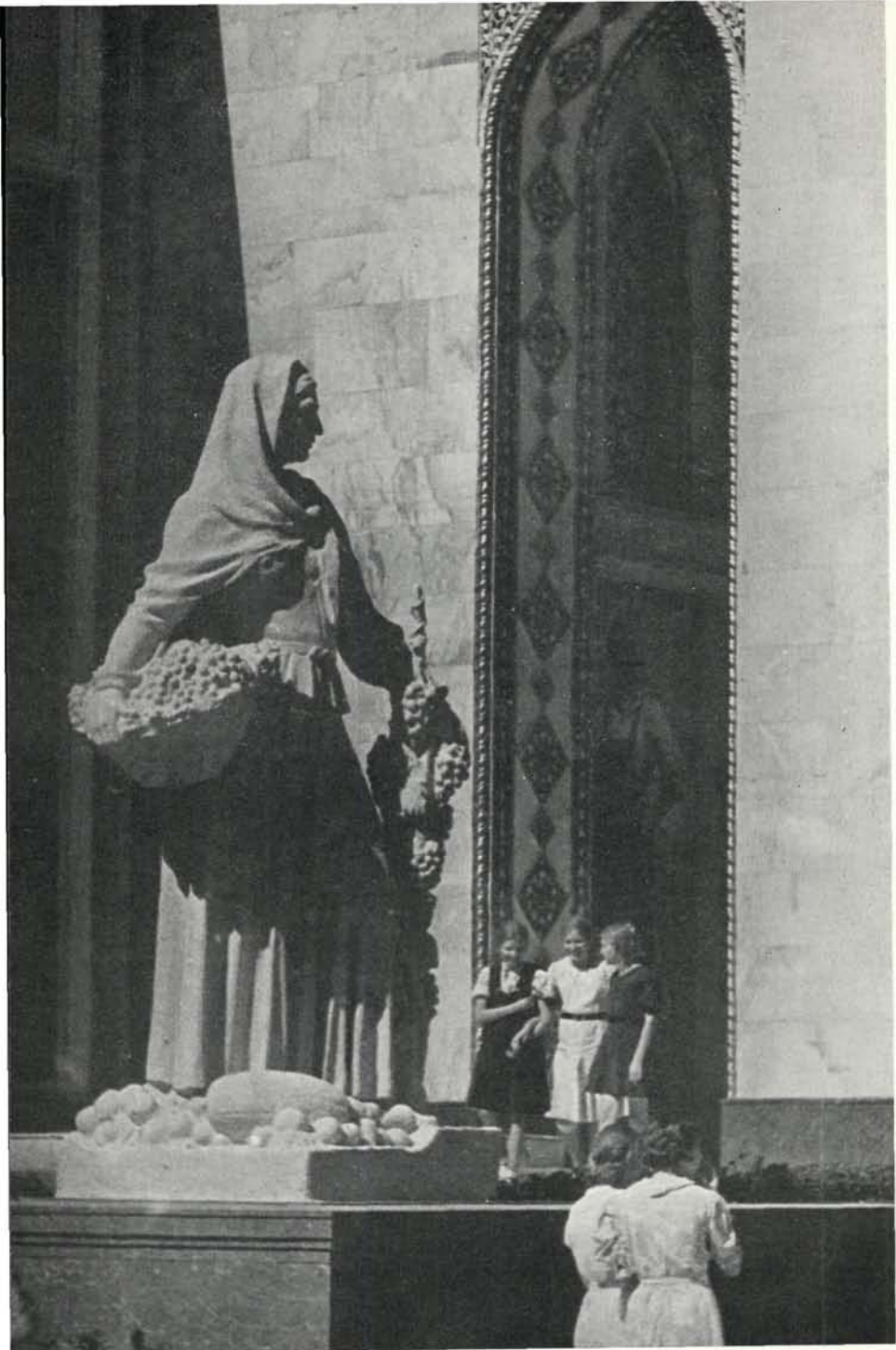


A Painting of the Electric Power Plant at Toulomsk
—AT THE NEW YORK WORLD'S FAIR



Forecourt of the Uzbek Republic Pavilion

—AT THE ALL-UNION AGRICULTURAL EXHIBITION



At the entrance of the Pavilion of the Azerbaijan Soviet
Socialist Republic

—AT THE ALL-UNION AGRICULTURAL EXHIBITION



The Pavilion of the Uzbek Republic

—AT THE ALL-UNION AGRICULTURAL EXHIBITION



Delegates and Visitors from the Chechen-Ingush (Caucasian)
Autonomous Soviet Socialist Republic seeing the sights

—AT THE ALL-UNION AGRICULTURAL EXHIBITION



Pavilion of the Chief Office for Refrigeration of the People's
Commissariat of the Meat and Dairy Industry

—AT THE ALL-UNION AGRICULTURAL EXHIBITION



General view of the pavilions of the Kazakh S.S.R.
(to the left) and of the Georgian S.S.R.

—AT THE ALL-UNION AGRICULTURAL EXHIBITION



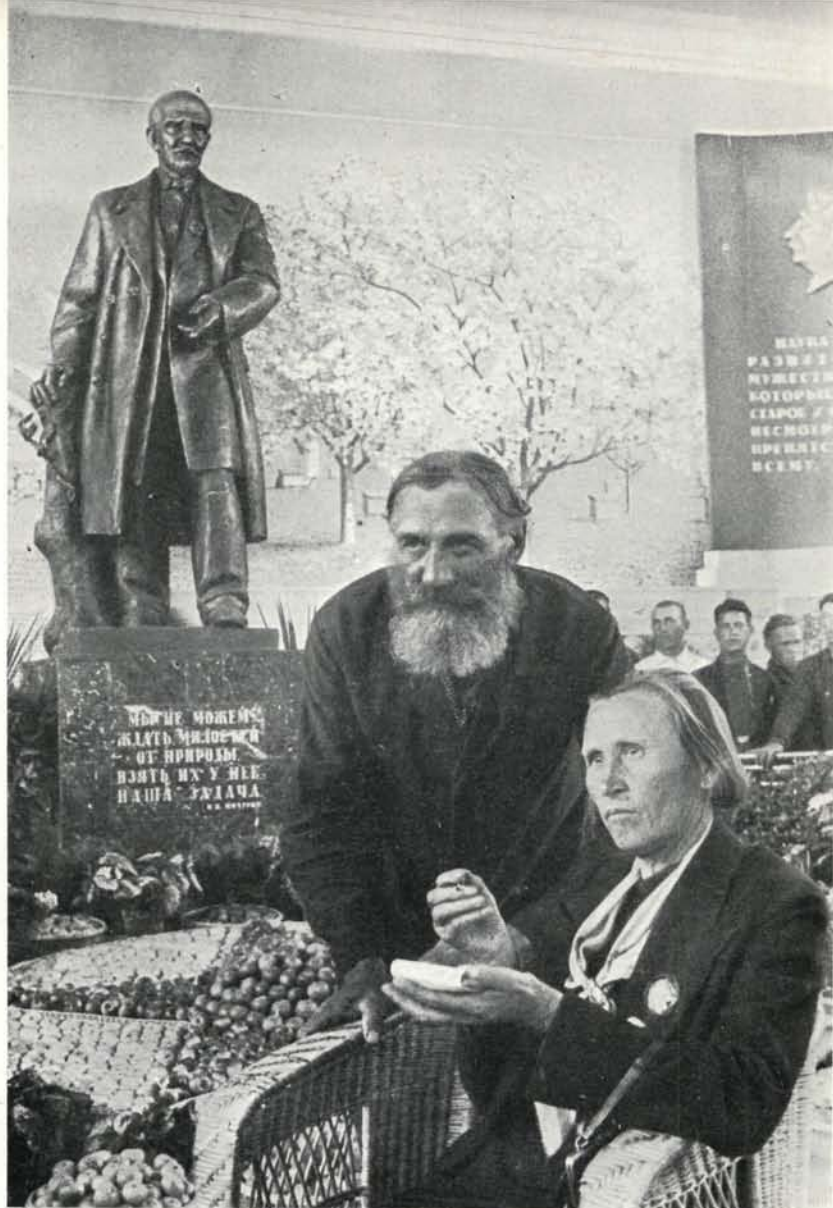


A Concert by the Uzbek Collective Farm Company

1. Audience 2. Performers

—AT THE ALL-UNION AGRICULTURAL EXHIBITION

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Collective Farmers from the Tatar Autonomous Republic listen to a lecture. The statue is of Michourin, the great botanist.

—AT THE ALL-UNION AGRICULTURAL EXHIBITION



1. THE OLD AND THE NEW GENERATION

Regard the result of their labour on the
collective farm with pride

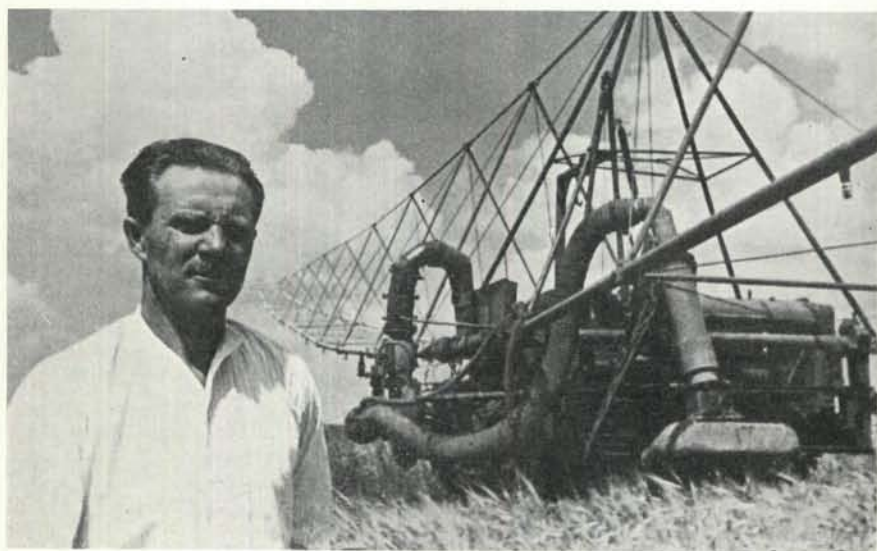
2. ON THE COLLECTIVE FARM

Rest after labour



GREAT PROGRESS HAS BEEN MADE
IN SHEEP AND PIG BREEDING

1. Rambouillet sheep
2. The prize pig's morning toilet



THE MACHINE TRACTOR STATION HAS
SENT ITS AID TO THE COLLECTIVE FARM

1. Harvester Combine
2. A spraying-machine supplies artificial rain areas in drought



The Mechanisation Pavilion showing latest Tractor Models
in Agricultural Machinery

—AT THE ALL-UNION AGRICULTURAL EXHIBITION